CASE STUDIES IN LEADERSHIP AND CURRICULUM CHANGE

A Dissertation

by

HOLLY DEE JARVIS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2012

Major Subject: Agricultural Leadership, Education, and Communications

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Approved by:

Chair of Committee,	Kim E. Dooley
Committee Members,	Theresa Murphrey
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ABSTRACT

Case Studies in Leadership and Curriculum Change. (May 2012)

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Curriculum review projects ensure updated material that meets the needs of students and employers. Most projects report what was accomplished in terms of how the new curriculum will better meet these needs. Few studies have explored the curriculum change process from the faculty perspective. Few studies have explored the leadership of these projects, and very few studies have examined curriculum development processes in higher education from a faculty perspective. This case study allowed for in-depth exploration of the faculty experience of the curriculum development process, of the project's leadership, and of the perceptions of change held by faculty. Fourteen faculty members were interviewed about the project, and minutes from committee meetings as well as other departmental documents were used to triangulate faculty feedback to paint a comprehensive picture of the experience of these faculty development projects.

First, the entire case study explores the range of responses faculty provided in their interviews. Themes that emerged included thoughts about the development process, impacts on teaching, impacts on students, reflections on change and the impact

of leadership. These themes identify ways that the department knows itself better because of the curriculum project.

Next, analytic induction of the interview data resulted in a match between the leadership data and transformational leadership. Transformational leadership includes idealized influence, inspirational motivation, intellectual stimulation and individualized consideration, all present in the faculty reflections on their experience. As successful change leaders, they were able to build on the existing relationships in the department to achieve more than they had originally planned, the key identifying feature of transformational leadership.

Finally, five individual stories were purposively sampled to exemplify the experience of change for different faculty members. These exemplars represent the spectrum of response to change including innovators, early adopters, early majority and late majority. One non-adopter was interviewed. These individual cases explore the ways in which they have dealt with the innovation of curriculum change, changes in teaching and new ideas about assessment.

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CHAPTER I

INTRODUCTION

Learning outcomes assessment has become an important trend in higher education in the past ten years (Maki, 2010). Becoming familiar with learning outcomes assessment, writing assessable outcomes and actually using outcomes assessment for program improvement can be challenging. Considering trends toward accountability and documentation of student learning and achievement, adopting learning outcomes assessment seems an important step for universities, colleges and departments to pursue. Adopting learning outcomes assessment while simultaneously changing the curriculum is an opportunity to shift focus from information delivery models of education to student-centered education using learning outcomes. Leading curricular change and examining the effects of the change process on faculty are the concerns of this study. One in-depth case study was developed which demonstrates effective curriculum change leadership and explores the faculty experiences of curricular change.

The curriculum project in this department began in 2009. After pursuing curriculum change in the 1970's, the curriculum has slowly evolved for more than 25 years to its current state. A regular departmental review which concluded in 2008 recommended that the department comprehensively examine its curriculum. This recommendation prompted the department to organize a committee and secure support for a curriculum review. The goals of the review included: designing a curricula which

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This dissertation follows the style of *Journal of Ethnographic and Qualitative Research*.

would attract the most qualified students, provide them the skills necessary to succeed in their careers; develop assessable program outcomes; identify gaps in the curricula needing to be addressed through program development.

This study explored effective change leadership in the context of curricular change in higher education. Further, this study provided perspectives on this change process from the point of view of the faculty within the department.

Review of the Literature

Understanding the leadership of curriculum change efforts involves three nodes of knowledge: leadership, change theory and curriculum revision processes. The leaders of curriculum change initiate and facilitate the change process as well as support the implementation and evaluation of the change effort. Different approaches to leadership influence social systems differently. An understanding of change theory can help leaders understand their social systems by identifying various responses to change, helping leaders deal with resistance to change improving implementation of planned change. Curriculum revision is one kind of change occurring in educational systems. Models for curriculum revision provide structures that the social system can follow in pursuit of change efforts.

Leadership is a complex process which involves influencing a group of people toward a desired direction. Leadership has been defined as a set of traits, a personality characteristic and as persuasion (Bass, 2008). Leadership has also been discussed as an exchange between followers and leaders, as well as a series of choices made by people depending on the situation (Northouse, 2007). Leaders of curriculum revision projects

including committee chairs, committee members, departmental leadership and curriculum experts external to the department are involved in the initiation and facilitation of the process. The work of these leaders also supports those involved with the process of curriculum revision. Leaders of these processes work with teams and committees to develop curriculum plans. Leaders also influence the organizational climate in which groups and committees perform their work.

Leading committees focused on curriculum change requires attention to both task and personal sides of leadership. The leader must ensure that the committee stays focused on the completion of the task at hand. The leader must give equal weight to the details of the project and the big picture of the curriculum change process in the context of the university setting. Further, the leader must be continually aware of internal and external constraints. Focus, balance of detail and holistic perspective and awareness of constraints are all task-oriented concerns. The leader must balance these task-oriented concerns with relational-oriented concerns (Blake & Mouton, 1964). Relational-oriented concerns revolve around the group's function, the group members' need for affiliation and managing conflict (Bass, 2008). The leader must attend to the team's overall social function and to the motivation of the individual members while balancing goal achievement by the group.

Leaders vary in their emphasis on task and relationships. Leaders who focus more on rewards for tasks completed are said to be transactional in their approach to leadership (Bass, 2008). On the other hand, leaders focus on the motivation of followers and their needs for self-worth are said to be transformational. Transformational

leadership is characterized by charismatic influence, inspirational motivation, intellectual stimulation and individual consideration. All of these qualities come together to raise the level of awareness of the followers. Followers of transformational leaders raise their level of consciousness and commitment to higher, more meaningful goals within the organization (Bass, 2008). Transformational leaders are those who can influence followers to rise above their own self-interest for the good of the organization. Transactional leaders focus on the exchange between the leader and the follower (Burns, 1978). The goal is to satisfy the interests of the leader and the follower (Bass, 2008).

Leadership has an influence on the climate of an organization. Koopman (1991) noted that transformational leaders would be more prevalent in innovative climates and transactional leaders more prevalent in bureaucratic climates. Ekvall (1996) included ten factors in his description of creative and innovative workplace climates: challenge, freedom, idea support, trust, dynamism, playfulness, debates, risk taking and time to develop ideas. Innovative climates include low levels of interpersonal conflict. Transformational leadership has been found to correlate more closely with innovativeness in organizations than transactional leadership (Den Hartog, Van Muijen & Koopman, 1996; Jung, Chow & Wu, 2003).

In educational systems, innovations spread in several ways. An innovation is a practice or product that is perceived as new by those who are in the organization (Rogers, 2003). Adoption or use of an innovation can occur at varying levels for each individual in the organization (Hall & Hord, 1987). Innovations are adopted in organizations by individual members who adopt or begin to use the innovation, or by the

organization making a decision to adopt the innovation and allowing the innovation to become the standard of the organization over time.

Change theory can help leaders in educational settings to recognize different responses to change, deal with resistance to change and improve implementation of planned change. People respond differently to change depending on their personal characteristics and the means by which they are introduced to the innovation. Rogers (2003) described a social-systems model for individuals making an innovation-adoption decision. Central to this model is communication throughout the social system over time. Adoption is influenced by the kinds and sources of communication the person receives as the innovation-adoption process unfolds over time. Change agents and innovation champions, those who introduce and promote change in social systems and organizations, communicate with opinion leaders to advance the adoption of the innovation (Rogers, 2003).

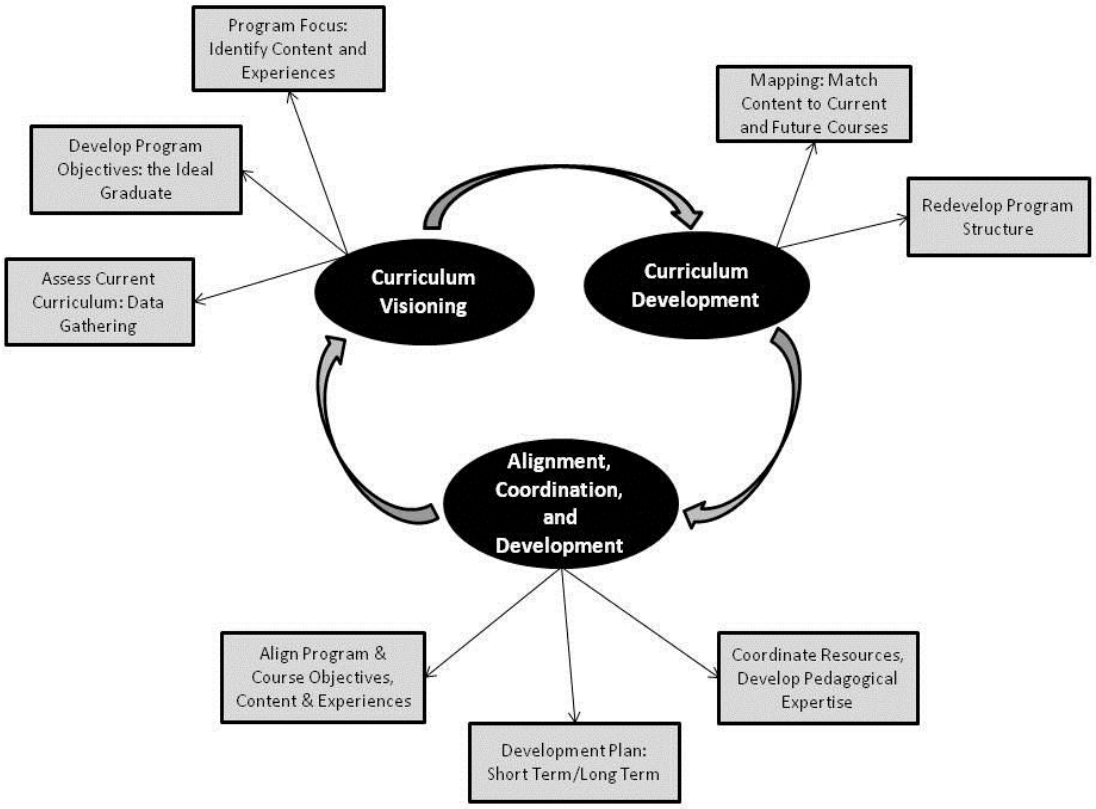
Hall and Hord (1987) described a perceptions-based model of innovation adoption developed in the context of education innovations. Central to the Concerns Based Adoption Model (CBAM) is the idea of the individual and the importance of that individual's perceptions of the innovation. Those individuals' perceptions will necessarily change over time as they gain more information about the innovation and as they gain experience with its implementation. Components of CBAM include Stages of Concern, Levels of Use and Innovation Configuration. Each of these components takes into consideration the educator's individual concerns about the innovation, how the innovation is implemented by the educator, and how the features of the innovation are

perceived by the educators in the system. The change facilitator, one who helps those in the institution to be more successful with the innovation, notes changes in the educators' perceptions over time and develops interventions to address those developing concerns.

One innovation occurring presently in higher education is student outcomes assessment (Maki, 2010). Curriculum development models show various processes used for improving courses and curricula in higher education, based on the idea of shifting from information delivery to outcomes-based education. These models provide a framework for evaluating the process used to address curriculum development projects.

Wolf (2007) developed a three-part cyclical process to help make the shift to learner-centered education which is a "faculty-driven, data-informed, and educational development supported" (Wolf, 2007, p. 16). The process begins with what is termed visioning (Figure 1). For visioning to occur, data must be collected regarding past assessments of the courses and the overall curriculum. A strengths, weaknesses, opportunities and threats analysis is performed. Data are collected regarding the state of the field of knowledge, student characteristics, and the needs of society. Institutional priorities are synthesized into major goals, outcomes and the ideal sequence for the course or program. Curriculum projects also must consider accreditation and licensure, credit hour limits, and the effectiveness of the existing program (Diamond, 2008). All of the data collected is used as a foundation for developing program outcomes that are stated in terms of the attributes of the ideal graduate. Then, the focus shifts to identifying the knowledge and experiences that lead to students showing those ideal characteristics.

Figure 1
Wolf model of curriculum development



Note. Curriculum development phases in this model progress from curriculum visioning to curriculum development to curriculum alignment. Adapted from "A model for facilitating curriculum development in higher education: A faculty-driven, data-informed, and educational developer-supported approach" by P. Wolf, 2007, *New Directions for Teaching and Learning 112*, p. 17. Copyright 2007 by Peter Wolf.

The second part of the process is curriculum development. A gap analysis is used to determine where and to what extent the ideal attributes of the graduates are being met or not being met. From this analysis grows the redeveloped program content.

The final stage of the process, called alignment, coordination and development, includes working on new teaching and assessment methods (Wolf, 2007). During this

portion, the assessment of the curriculum and/or course must be continually considered as the new program is developed (Diamond, 2008). As the program is implemented, evidence of student achievement of the outcomes is collected and assessed which occurs through a process of selecting and evaluating student-generated data, and implementing changes for the future (Fowler & Sandoval, 2011). This three-part process, visioning, program development and implementation, is viewed as a cycle and the goal is continuous improvement. This process also takes advantage of an educational developer who provides support throughout the process (Wolf, 2007).

Purpose of the Study

Leading curriculum change projects involves leadership, knowledge of change theory and of curriculum change processes. These projects occur at both the course and comprehensive curriculum levels. The purpose of this study was to examine the departmental process of comprehensive undergraduate curriculum revision in a sciences-oriented department at a large land grant university in the southwest.

Guiding Questions

- How was the curriculum change process experienced by faculty in this department?
- How did faculty perceive the effectiveness of the leadership of this curriculum change project?
- What were the differences in faculty experience of curriculum change projects across adopter categories?

Methodology

Case study methodology involves studying a bounded system in depth (Stake, 1995). Yin (2009) offers guidelines on when case study methodology is appropriate in that it asks how and why questions, does not require control of the flow of events, and focuses on contemporary rather than historical events. The last two features are particularly important because case study methodology depends heavily on direct observation of events and on interviews with those participating in the events. As a form of empirical inquiry, a case study should provide a clear, in-depth analysis of contemporary events occurring in a bounded system in which the object of study and the context of the object are not easily separated (Yin, 2009). Case study methodology is appropriate because the situation involves more than qualitative or quantitative data alone. Case studies emphasize understanding the multiple realities of those in the case (Stake, 1995). These kinds of studies have the advantage of presenting multiple sources of evidence to support the conclusions drawn from the study (Yin, 2009).

The heart of case study methodology is the case study questions. For a case study, the unit of analysis must be specified. For this case, the unit of analysis is the department. The case study questions lead directly to the propositions, or the logical linkages between the questions, the data collection and the analysis. The case study methodology must also specify the logic linking the data to the criteria for interpreting the results and the conclusions.

Case studies address validity and reliability in different ways. Four different ways to establish quality in empirical research include construct validity, internal

validity, external validity and reliability (Yin, 2009). Construct validity is achieved through "identifying correct operational measures for the concepts being studied" (Yin, 2009, p. 40). Construct validity is achieved in case studies in the data collection phase through collecting data from many different sources, by establishing a linkage between case study questions, the protocol, citations and the conclusions presented in the case study report. Further, construct validity can be achieved by means of key persons involved in the study reviewing the case study report before it is finalized. For qualitative researchers, this is termed triangulation (Merriam, 2009). Triangulation also reduces bias in the study, helping to achieve credibility (Patton, 2002). Internal validity addresses the means by which conclusions are drawn from the data. Internal validity is addressed in the data analysis stage of the case study through establishing patterns within the data, building explanations that address rival theories and through the use of logic models. In qualitative studies, internal validity is known as credibility (Merriam, 2009). External validity has to do with generalizability. Generalization in case study research is to the theories applied, and is addressed in the research design phase. For qualitative researchers, generalization is referred to as transferability (Merriam, 2009). Reliability refers to the replicability of the conclusions of the study by another researcher using the same data. In case studies, this is addressed at the data collection phase through building a case study database or audit trail (Merriam, 2009) and by using rigorous case study protocol (Yin, 2009). For qualitative studies, audit trails, case study databases and using rigorous protocol achieves what is known as dependability (Merriam, 2009).

Data that should be collected and analyzed include observations, document analysis, and interviews. Observations should occur provide first-person contact with the natural workings of the phenomenon. Documents to be analyzed would include minutes recorded from meetings of the committees, as well as other documentation such as memos and handouts provided at those meetings. Interviews should be conducted with faculty members who have been involved in the process in some way.

Purposive sampling in case studies involves selecting those people within the case who have insight about the case (Patton, 2002). Selection criteria must be set prior to beginning data collection as a means of guiding the sample selection (Merriam, 2009). Purposive sampling strategies involve selecting the most information-rich people from whom to glean information (Patton, 2002). Selection of interviewees should follow a strategy known as maximum variation sampling. In this strategy, the interviewees are selected to represent the spectrum of involvement in the case. The goals of this kind of sampling are to capture a clear description of the case, and to discover shared patterns that are present throughout all segments of the case being studied (Patton, 2002). The purpose of selecting such a small sample is to achieve credibility, to show that the data match reality (Merriam, 2009).

This department has 107 total faculty members. However, only 51 are campus-based, and only 24 are designated to teach undergraduate classes. The committee was open to anyone in the department with an interest in curriculum development, so it was not limited strictly to those who taught undergraduates. There were a few on the committee who were only designated to teach graduate classes. In all, 14 faculty

members agreed to be interviewed, and each had participated in the work of the committee in some way throughout the life of the project. They were selected to represent the spectrum of experience with the project and because of their deep knowledge of the phenomenon.

There are strengths and limitations to the use of this methodology which are addressed in the design of the study. To achieve rigor, the analysis must demonstrate adherence to systematic procedures. Further, conclusions should be based solely on evidence from data that has been gathered. Case study methodology is often criticized because the generalizability is not possible because of the context specificity of the study. Case studies generalize to a theory, not a population, and are used to expand the applications of theories to new arenas or to provide an empirical basis for limiting the application of a theory (Yin, 2009). Case studies are sometimes criticized for being too long to be useful. For this reason, during the planning phase, a writing plan should be developed in which the final document's structure is specified (Stake, 1995). Further, the planning phase should take into account planning time for writing the case study. One final critique of the case study methodology is that case studies often do not address causality. This is often true because there are no control cases in such a methodology. Case study can, however, complement an experiment by demonstrating the process of applying the experiment protocol, and can help interpretation of the results by providing documentation which explains how the experiment was perceived and experienced by the participants (Stake, 1995).

Format

This dissertation followed the three-article format. The study was approved by the university's Institutional Review Board (Appendix A). All interviewees were provided with an approved informed consent form (Appendix B) which followed the approved interview protocol (Appendix C). Finally, the articles will begin by providing a crystallizing story or quote pulled from the data which will provide the reader with a sense of being present as the case was developing, as recommended by Stake (1995).

The first article traced the development of the project from beginning to submission of the curriculum proposal, and explored faculty perspectives on the process. This case study examined themes that emerged from interview data. Fourteen faculty members from the department were interviewed about the project, and the interviews suggest that the faculty members responded positively to the curriculum change process. The interview data was triangulated with departmental documents, direct observation and minutes recorded during committee meetings. The findings were summarized and discussed with experts in the field through the use of peer debriefing memos (Appendix D). Although not all individuals were equally concerned about the project and some were slow to join in, everyone made a positive contribution to the new curriculum. The committee meetings focused on teaching and learning, strategies for achieving optimal learning, and aligning the curriculum to achieve optimal learning.

The second article explored the project's leadership from within a framework of transformational leadership. Data relating to leadership issues was sampled out of the interviews and was analyzed using an approach known as analytic induction (Patton,

2003). The interview data was triangulated with departmental documents, direct observation and minutes recorded during committee meetings. The findings were summarized and discussed with experts in the field through the use of peer debriefing memos (Appendix D). The leaders were successful with their change efforts within the time frame of the study, and the analysis points to the application of transformational leadership practices as one of the keys to that success. The leaders delegated important parts of the committee's work to distribute the work that directed the committee's energy and allowed each person who participated to create something new for the curriculum proposal. Younger faculty members appreciated the opportunity to create their own futures in the department.

The final article focused on the faculty experience of change. Five interviews were purposively selected to represent varying experiences of change, based on Rogers's (2003) adopter categories. This data was discussed with experts in the field through the use of peer debriefing memos (Appendix D). Those who adopted these changes earlier were all applying student-centered learning strategies in their classrooms before the project began. One adopter began a course that incorporated student-centered and experiential learning because of the project, and those who were slower to change had not yet implemented these strategies in a course of their own. One particular case in this article explored the thoughts, motivations and experiences of a faculty member who chose not to participate in the change process. This study focused on how faculty developers and curriculum change leaders can approach and influence those who are both accepting and rejecting change as development projects proceed.

CHAPTER II

CASE STUDY IN CURRICULUM REVIEW: CHANGE AND LEADERSHIP

Introduction

It is Friday afternoon in the middle of the semester, late October. Ten people sit around a long conference table, stacks of paper piled in front of each person, and a few balance the stacks on their knees while sitting in chairs against the wall. Some flip through stapled packets while sipping their coffee, some make notes while others look to the faculty member who is explaining the syllabus in front of them. He introduces the new class as one that will give broad coverage to many different topics, as a good introductory course should do. He explains that it will be a combination of knowledge elements with an emphasis on production and marketing. Moreover, the topics would overlap in the lab, and lab experiences would require the synthesis of knowledge about production and marketing systems. The group is then asked to examine the full list of learning outcomes that were used to create the class. The faculty member elaborates on the reason for creating this particular course, noting that students needed to conceptualize production from initiation to the final product. This course, explains the professor, is designed to lay the foundation for future courses.

The group's response is quiet, but generally positive. A representative from the one of the academic divisions in the department responds that this course would not be considered an add-on for their students but as a requirement and floats the idea that there should be an introductory course in this concentration. This is quickly rethought,

considering manpower, available teaching credits and courses that are currently on the books. The group discusses ensuring relevance of this class, making sure that it covers up to date topics in the field. Finally, the group discusses which current course this new class will replace, and it is decided that the less there is to change the better, keeping a current course number and reassigning the content. Discussion moves to consideration of the level of the course, and what requiring that course might do to the graduation plans of junior college transfer students. No decision is made on that issue at this meeting. The meeting proceeds in a similar fashion for the next hour and a half as each new course proposal is discussed in great detail.

Curriculum development projects emphasize improving the experience of students and aim for an increased marketability of graduates. Often beginning with identification of the knowledge, skills and abilities needed by graduates (Wolf, 2007), curriculum revision and redesign projects involve redevelopment of content, building consensus about the most effective teaching strategies and aligning course content with program goals. Finally, these redesign projects should keep in mind assessment of student learning during the design phase (Diamond, 2008). In some instances, curriculum review and redesign is very new to the system and represent a big change for the department, while others use curriculum development on a more continual basis. People leading these projects need to provide direction and support for these efforts.

Impact of Curriculum Change on Teaching Students

Student learning outcomes focus on knowledge, skills and abilities students need to demonstrate a desired level of competency in some area. The shift to student learning

outcomes and to alternative assessment practices (Angelo & Cross, 1993) suggests that teachers adjust their practice to include more active learning. Kolb (1984) outlined his Experiential Learning Model can transform knowledge, improving student learning when implemented. Students first need a concrete experience, then an opportunity to observe or reflect on that experience. This should allow students to form an abstract concept based on their experience. Finally, the knowledge is transformed when the student transfers the knowledge to another area or another task.

Svinicki (1987) discussed several strategies to implement Kolb's Experiential Learning Model in the college classroom, as well as across the entire curriculum. If this model were implemented, even on a small scale, then the student experience of college classes would be changed. Steffes (2004) described two experiences that impact student learning, internships and service learning. These two experiences are part of a larger group of practices known as high impact educational practices, and also include senior capstone experiences and writing intensive classes (Kuh, 2008). Brumm, Hanneman and Mickelson (2006) interviewed employers who identified the internship concept as being the best way for students to demonstrate that they had attained the desired level of student learning outcomes, and that the classroom would be the least likely means to attain the desired level of student learning outcomes.

When moving toward implementation of these kinds of practices, promoting reflection and dialog about teaching (Qualters, 2009) is important for the development of new ideas. The philosophy of each faculty member influences the content and teaching of the curriculum (Donnelly, 2009). Because the implementation of student learning

outcomes and high impact educational practices require more of students, it would also be important to have students re-examine their assumptions about what they expect from classes (Kreber, 2001). Gibbs and Coffey (2004) found that faculty development and training had a positive effect on student evaluations, influenced faculty to become more student oriented, and challenged students to learn on deeper levels.

The impact of curriculum change on students was discussed by Hodge, Keeshan-Nadler, Shore, and Taylor, (2011). Students in the courses that had been changed reported taking more responsibility for their learning and using higher level thinking skills. Professors reported that after at time, students in higher level courses that were not part of the curriculum redesign were more collaborative and analytical in their approach to learning. This evidence points to the long-term student impact of curriculum change projects and influence on the teaching approach of faculty members. While most curriculum projects have a goal of increasing marketability for students entering careers (Bliss, 2007; Wolf 2007), all projects have some sort of change in mind, whether at the course level (Collins, 2008) or the program level (Jarvis, Collett, Wingenbach, Heilman, & Fowler, 2012).

Curriculum Change as an Innovation in a Social System

Innovations diffuse over time through social systems (Rogers, 2003). Leeuwis and Aarts (2011) suggest that communication about innovations within social systems has the power to influence the development of the innovation as it is implemented in the social system. Communication within social systems promotes the adoption of innovations, as those who adopted the innovation earlier communicate with those who

decide to adopt at a later time (Rogers, 2003). This delay in adoption of innovations throughout the social system indicates that for some people, the amount of time it takes for a person to make a decision to adopt an innovation is longer than it is for others. Innovators, the earliest adopters, become aware of innovations and decide to adopt them very quickly. Laggards, on the other hand, become aware of innovations later on and decide to adopt them slowly, and only after others in the social system who have adopted the innovation have proved that there is very little risk associated with adopting the innovation. Some Laggards never adopt an innovation. Between these two extremes are the Early Adopters, the Early Majority and the Late Majority. The curriculum redesign process itself involved each adopter creating something new such as a course, a course module and together the curriculum as a whole, so communication about the innovation among the faculty has an important role in shaping the outcome of the adoption process (Leeuwis & Aarts, 2011).

Hall and Hord (1987) also described the phases a person experiences as they begin to use an innovation. They term these as the Stages of Concern. An adopter will progress through a predictable set of questions about an innovation, developing from questions related to the self, to questions related to the task of implementing the innovation, to questions relating to the impact of the innovation on those served, particularly in an educational context, students and other teachers. The Stages of Concern are part of a change model known as the Concerns Based Adoption Model (CBAM) (Hall & Hord, 1987).

Srivastava (2007) explored the Stages of Concern with faculty adopting technology in India and found that most of them were more concerned about the impact on students than about themselves or the task concerns of implementing the innovation. However, curriculum projects that are extended can fail to draw people along in the level of their concerns, as Kelly and Staver (2005) found. In their study, teachers who had been implementing a new curriculum for three years were still having intense self and task concerns. To address this, Dobbs (2000) suggested that faculty be presented with a combination of experience with the innovation and verbal presentations which support their informational needs. Zayim, Yildirim, and Saka (2006) noted that people who adopt an innovation later have different training needs than those who adopt earlier, so even the verbal presentations by Dobbs (2000) should be adjusted to meet the needs of the group. The goal of these kinds of changes is the institutionalization of the innovation, or a situation where the innovation becomes commonly used by the organization. Hall and Hord (1987) define institutionalization as a situation where self concerns are low, most people are using an acceptable configuration of the innovation, and the use level is routine. Van den Berg and Ros (1999) found that support for the innovation grows as institutionalization occurs. For those who still resist, adoption can be motivated by a number of things including the attainment of rewards (Surry & Land, 2000).

Time, the features of innovations, and the questions of the individuals in the social system all explain ways that innovations can be conceived theoretically. Lightener and Bernander (2010) examined the forms of resistance to changes in faculty

teaching from a qualitative perspective. They found that resistance came in many forms including resistance based on incompatibility with current teaching philosophies. Faculty had entrenched perceptions of what successful students did to earn that status. Faculty also perceived student learning outcomes to be restrictive on academic freedom. Faculty also resisted these change because they were seen as a top-down paperwork mandate. Faculty also reflected that changing teaching methods was more work for them, considering their other job responsibilities. Finally, faculty they had worked with were uncertain about what kinds of learning activities resulted in the kinds of outcomes that were desired.

Changing these kinds of deeply held perceptions necessitates a shift in mental models. Qualters (2009) outlines a dialogue method of raising awareness of one's own hidden assumptions about teaching, and discusses the changes that participants wanted to see in their teaching as a result of the dialog. This kind of process can serve as a way of unfreezing the resistances outlined by Lightner and Bernander (2010) and open the door to the changes desired by the faculty developer working with curriculum change or with teaching improvements.

Leading Curriculum Change Projects

Curriculum projects need people to lead them. When leading in times of change, it is important to consider the style of leadership. Jung, Chow and Wu (2003) and others (Den Hartog et al.,1996) have found that there is a relationship between transformational leadership and organizational innovativeness. Transformational leadership is a theory of leadership first developed by Burns (1978) and further developed by Bass and Avolio

(1994). This theory holds that there are four areas that a leader can hold transformational influence. The first is intellectual stimulation. Intellectual stimulation includes the innovativeness of the leader, the leader's challenging of the beliefs and practices of the group, and the leader's support of group members when they try to approach problems and situations in new ways. The second area of transformational leadership is individual consideration. To practice individual consideration, the leader should be supportive, listening to the needs of the individual members of the group. Also, the leader takes a stance of coaching or advising, helping the followers to make the most of themselves as the leader delegates tasks to them. The third piece of transformational leadership is inspirational motivation. The practice of inspirational motivation includes having high expectations of group members, having a shared vision between the leader and the group, and emotional appeals. In this way, the leader prompts group members to go beyond their own interests to achieve the goals of the organization. Finally, the leader must express idealized influence. This is achieved through maintaining high standards of conduct within the leader's own work, thus earning the respect and trust of the group. The leader develops a mission and vision for the organization that includes the group's own directions.

Transformational leadership has an effect on the innovativeness of the organization itself. Transformational leadership is directly related to organizational innovativeness (Jung, Chow & Wu, 2003). Team climate is an important predictor of group or committee success (Bain, Mann, & Pirola-Merlo, 2001), and organizational climate has an influence on innovativeness (Ekvall & Ryhammar, 1999). Leaders of

curriculum change implementing the practices of transformational leadership (Bass & Avolio, 1994) will increase the innovativeness of their teams and groups through these practices (Junk & Sosik 2002). Higgs and Rowland (2011) explained that transformational leaders should draw their followers toward the goals of the organization, push followers to break from negative patterns, direct the anxious energy toward concrete outcomes, and challenge followers to change in the present moment not in the future. In this way, leaders of curriculum projects can provide the vision and the spark for positive change, reducing indecision (Kotter, 1996).

Leadership of curriculum revision projects in the transformational tradition can have an impact on the openness of a faculty to the innovations that they will both adopt and create (Jung, Chow & Wu, 2003). Faculty will have a variety of responses to these change initiatives (Rogers, 2003), and will demonstrate resistance to change based on time, the features of the innovation, and their their teaching philosophy (Qualters, 2009). Curriculum change has largely been discussed in the literature with the goal of reporting what was completed (Buchanan, Hibberd, Kropp & Damron, 1994), how the course was assessed or changes in student achievement after course redesign (Collins, 2008) or in a prescriptive manner (Wolf, 2007). This article extends this body of knowledge by examining faculty perceptions through the process of a curriculum change project.

Methods

This qualitative study follows case study methodology. Case study methodology allowed the incorporation of many different kinds of data to explore the phenomenon in

depth as it was occurring (Yin, 2009). It also allowed for the study design to emerge as the case progressed.

Data collection included fieldnotes, observations, documents and interviews. The researcher was able to have an office in the department during the time of the study, allowing familiarity with the department and allowing for prolonged engagement, which is a measure of trustworthiness (Merriam, 2009). Fieldnotes recorded during this time helped in the organization of thoughts about what observations during committee meetings. Minutes were recorded by the researcher during each committee meeting. Those minutes comprise a majority of the observational data. Documents related to the departmental history, the external review and the department's response to that review were part of the documents examined as well as the handouts used by the faculty developer and the materials created by the committee through the review process. All of these forms of data serve to triangulate the findings, which is also a measure of trustworthiness (Merriam, 2009).

Interviews were conducted after the majority of the committee work was complete, and the proposal for a new curriculum was passed on to the university level. Faculty members serving on the committee were purposively sampled because of their deep knowledge of the phenomenon. This sampling strategy aims to achieve maximum variation (Patton, 2002). Sampling for maximum variation is a strategy for achieving trustworthiness (Merriam, 2009). The interview protocol was developed based on literature on leadership (Bass & Avolio, 1994) and change (Rogers, 2003; Hall & Hord, 1987) as a guide. Interviewees included four assistant professors, two associate

professors, six full professors, the department head and the department's undergraduate advisor. Two of the respondents were female. In all, 14 faculty members were interviewed, and each respondent participated in a one-hour semi-structured interview.

After each interview, interview notes were transcribed and unitized the data at the idea level. The transcripts were analyzed using the constant comparative method (Glaser & Strauss, 1967), a process where each data unit is compared with the previous unit to either match the units in the same category or begin a separate category. The units were were coded using open coding (Patton, 2002). After an initial coding scheme was developed, a peer debriefing meeting was conducted with the faculty developer for the project. Peer debriefing is a means of achieving trustworthiness (Merriam, 2009). Themes and their definitions were further refined during the meeting. These decisions were recorded in the methodological journal and are reflected in the peer debriefing memos and serve as an audit trail (Merriam, 2009) for this study (Appendix D). As the interviews progressed, the point of data saturation was met when the last two scheduled interviews yielded no new categories. The themes were finalized while meeting with another peer debriefer familiar with curriculum and assessment, leadership theory and change theory. These meetings served to further refine the thematic definitions and address rival theories for the explanatory structure of each theme (Yin, 2009). To ensure confidentiality, each participant was assigned a two-digit random number identifier. Each quote provided by an interviewee is first identified with this two-digit code, then the unit number is identified after the colon. For example, the tenth unit of participant 20's interview would be coded 20:10.

The department in this case had not reviewed their curriculum in approximately 20 years. This department employs more than 100 faculty located in several extension centers across the state. Approximately 50 faculty are based on campus, and half of the campus based faculty teach 150 undergraduate students in two majors, as well as hundreds of other students in other majors who take courses in this department to fulfill requirements for their majors. An external departmental review recommended the department examine their curriculum. Since this department was a science-focused department within a college of agriculture, they sought help with this process from the another department that assisted in data collection using the Delphi technique in the fall of 2009 (Jarvis et al., 2012).

After the data had been collected, the department sought additional external support from the teaching support office on campus, that provided support for the review process. Following Wolf (2007), the department identified the attributes of the ideal graduate using the Delphi data. After the data had been sorted and program level outcomes had been distilled from that data (Jarvis et al., 2012), the whole faculty participated in a one-day retreat when the beginnings of a new curriculum and revised course offerings were discussed. For the next several months, regular meetings provided time for the committee to refine these potential offerings, aligning the potential courses with program goals (Wolf, 2007). The curriculum proposal package was submitted to the university committees in May of 2011, and is expected to go into effect in August of 2012.

During this process, significant changes occurred in the economic environment. Budget cuts kept salaries stagnant, and the university offered to buy out the contracts of several faculty who were close to retirement. Six people in this department took the buy-out, three of whom had major responsibility for teaching undergraduates. Tension resulting from retirements plus economic threats to individual research programs gave weight to the meetings and the project as a whole.

This faculty had not experienced any sort of curriculum revision or review in quite some time. Those who had participated in the previous curriculum project, more than 20 years ago, were all taking the offer of early separation from the university. This process represents a major innovation for this faculty. The group of innovations included the curriculum revision process itself, which required faculty to participate in an extended process of developing curriculum content and reflecting on approaches to teaching. Further, the innovation also included improving assessments at the course and program levels.

Results

While discussing the project with the department head, he emphasized "that one of the major outcomes of this process has been that the department understands itself better now" (25:48). This statement summarized the faculty experience of this curriculum project in several ways. The process itself was conducive to the department's self knowledge about its current program, its experiences, needs and new directions. The interpersonal knowledge developed between faculty members was instrumental in promoting increased knowledge and commitment to active learning and

improved teaching. The study showed that faculty also became increasingly aware of the impacts that the program has and will have on students in the department. During interviews, faculty members were encouraged to reflect on the process of changing their curriculum, which allowed faculty to express their concerns about past experiences, their level of openness to change, and reasons for staying on board or pulling out of the project. Finally, those leading the project were able to find ways to draw people along into something new in which each person had a stake. These new modes of self-knowledge inform the thematic discussion in this section.

The Curriculum Development Process

The curriculum development process provided a means for the department to understand itself in relationship to its own programs, to its university context, and knowledge that despite past failures, they can succeed in producing a viable curriculum proposal.

Faculty members in this department carried little experience into this process. There were very few faculty who had any significant experience with course or curriculum design. Most faculty members had designed a course they now teach or had previously taught when they started out. Several respondents expressed that there was a lack of educational training in their backgrounds, and that their interests were more in their field than in developing educational strategies, "I don't spend my spare time looking up new things about curriculum. I spend my spare time reading articles about [my field]" (10:26). Another faculty member explained the lack of direction provided for this kind of development, "I think sometimes that you're left to sink or swim, and that

you're expected at this level to know how to design a course curriculum, even without experience" (24:2). However large these deficits in experience, the faculty were deeply interested in teaching students and helping them learn the field.

The process began with data collection. To accomplish this, they solicited the help of a faculty member from an outside department who was skilled in this kind of data collection method. They decided that the best model for collecting the kinds of input sought by the department was the Delphi technique. After collecting input from various stakeholders using this technique, the committee was able to organize that data into student learning outcomes for the department. The Delphi technique was not welcomed by all faculty members. One faculty member was "disappointed because I thought I had convinced the committee to look at the professional tests" (43:46) for becoming a licensed professional in the field as a basis for the curriculum development process. This faculty member warmed to the Delphi data, and most others were very open to getting outside input, and considered the Delphi process a valid means of attaining the data for the foundation of the new curriculum.

Preparing to move from the Delphi data to the work of developing a curriculum was not easy. "The Delphi was good, but getting that information from there to a curriculum was different" (92:50). The next step in the process was an off-site department-wide retreat where the goals were to inform the faculty about the development process, provide an opportunity for everyone to provide their input on what the curriculum needed to look like based on the learning outcomes, and form a rudimentary slate of tentative courses that would be developed into a new curriculum.

The feedback from this experience was primarily positive, but responses indicated that the one-day format was overwhelming for some in terms of the information and that there were too many goals to be accomplished in that time. Faculty who were interviewed reflected a feeling of a lack of preparation and readiness for the magnitude of what the retreat goals expected. "I still was a little unsure at that point. At the retreat, I felt in the process very uncertain" (59:40). Although there was a lot of information and uncertainty, the retreat did yield a rudimentary slate of courses that were developed during the next phase.

The next phase focused on developing individual syllabi for the new slate of courses including listing the outcomes that were selected for the course. The faculty committee continued to meet regularly during this time. Those committee members who developed a syllabus spent time outside of their normal responsibilities doing so. This put a strain on their time, one faculty member described the experience,

> I did not give this the time that I should have. I would say – ok, we'll have this meeting and I need to get this done. I'm burning the midnight oil to get it done. It was not my best, but that's the way it was done. It was an add-on to the rest of what I was doing. (57:33-34)

The committee leader commented on this as being one of the challenges of a project like this, "You have to keep people on schedule, keep people engaged, keep up with their assignments while balancing getting my own thing done" (79:28). For some committee members, the time and energy demanded by curriculum development tasks competed unsuccessfully with other requirements, "when other things started to take up our time,

like research and teaching, they became disenchanted with the program" (47:13). Having made their contribution, some members of the committee dropped their involvement in favor of other tasks as the work of the committee progressed over time.

The meetings provided faculty an opportunity for faculty to discuss the project on a regular basis. "We got to ask our questions, we got to give our input, we got to digest things, sort things out, and take things to the next step" (59:45). A great deal of the meeting minutes reflect this approach, allowing open discussion, reviewing the logic of past decisions, getting opinions out in the open, and providing feedback on the syllabi that were developed.

The faculty developer who was directing the project continually provided support materials and handouts, providing the committee food for thought about teaching and the development process. These handouts were provided and examined with little follow-up or explanation, which prompted one committee member to note, "we would get 20 handouts, someone would say they were really good, and then would move on to something else. I need something simple" (92:55). One other faculty member described his approach, contrasted to that of a "social science person" (43:50) differentiating the approaches based on "a vocabulary divide between objective types and intuitive types" (43:51). This prompted discussion of some of these things as things proceeded and the faculty developer continued to present different kinds of approaches during the meetings.

As syllabi were approved by the committee, the meeting time came to be dominated by discussions about the sequencing of courses, the program hour limitations,

and determining what elements of the program should be required for whom. One faculty member remembered that the university-level restrictions in some of these areas were constraining, and there was a shift from the project "engaging my creativity" to the point at where "we hit all of these administrative constraints" (10:29-30) which turned that faculty member off. In spite of these constraints, this respondent added, "I have gained a better perspective about what the university wants, and that I am more receptive to those things than I was before" (10:32). Many of the university-level requirements such as the requirements of the university core curriculum were discussed at length in meetings, and the committee had to resign itself to work within those guidelines.

During this process, the focus of the development schema was moving to student learning outcomes assessment. These were developed from the Delphi data, and used in the syllabi. Several faculty members heralded a few on the committee who continually drew focus back to the outcomes and away from replication of courses currently being taught. One faculty member who reflected this sentiment added that the outcomes were "unwieldy" (57:30), but were useful to get to the new curriculum. One faculty member praised the process, "It was good that we re-looked at those outcomes, and took stock of our prioritization of those outcomes. It was good to see them all stacked up the way we did" (25:41-42). One faculty member described the process of coping with student learning outcomes as a "repackaging of teaching" (47:18) objectives, and there was discussion in meetings about how the department was already in most senses using student learning outcomes. There was a sense among the committee that there would not be any great shift in the qualities students possess when

they graduate, “I really don’t expect that our students will have a different slate of capacities than in previous years. I would expect some, but not huge” (25:43).

As the department is preparing for the implementation of its new curriculum, the process has helped the department clarify its own program goals, connect courses with its overall program outcomes, understand itself in the university context, and create for itself a new direction.

Teaching Impacts

One area in where the department’s self knowledge has increased because of this project is in the area of teaching. Faculty have grown in their knowledge of their own and their peers’ assumptions about teaching, they know more strategies for teaching and assessment that are being used in by other faculty members, and they know the problems faced by departments facing staff cuts and the effects that has on those who stay on.

A majority of the meeting time during the course-development phase of the project was spent discussing teaching and teaching approaches. The meeting minutes reflect that these discussions focused on philosophy, content and approach. Faculty welcomed this discussion, and said, “It was really beneficial to have an open discussion about teaching philosophy” (93:25). Since there is not an emphasis on developing educational approaches in their training, this was for some the first opportunity since beginning their career to think about these things. “We don’t have training in learning theory; people just usually do it the way they have seen it done. Then you go 20 years, and you haven’t changed” (93:49-50). The teaching discussions provided many committee members with the opportunity to hear what others were doing with their

classes. Even after meetings, as the committee was dispersing, one faculty member overheard some committee members discussing the use of technology in a certain way in the classroom. Within a few days after this, he had begun to implement that strategy in his classroom. The benefits of the discussion were not limited to those directly engaged in the meeting. One faculty member would appreciate more opportunities to have these same kinds of discussion, "We should have more regular meetings on how to teach. We should focus more on sharing successes and failures" (10:40). One faculty member floated an idea that "for junior faculty coming in, there should probably be a training session" (93:48) and also expressed desire for more teaching-focused training for all of the faculty.

The discussions focused on moving away from traditional lecturing and toward using more experiential learning. During the syllabus development phase of the project, the faculty developer implemented a rule stating that there must be an experience-based skill component to each course. "Skills…were not well addressed by our [old] curriculum" (10:9). Those who had been regularly implementing experiential learning strategies in their classrooms outlined some of the challenges related to moving in this direction, "Using learning activities is harder to do until you've been through it a few times. You've got to build a library" (93:13-14). These committee members were also concerned about the shift.

> My concern is with all of this experiential learning, and I agree with it. But where do we talk about the burden on the teacher? With our research

commitment, and with people leaving, are we overloading ourselves? Can we handle this, and simultaneously get Oxygen to those who are teaching? (97:50)

Most committee members agreed that the move toward experiential learning was a positive one, and that this "is something that students really need, and it's something that they ask for, that they clamor for" (75:54). Many committee members had already implemented these strategies in their classrooms before the project began, and others have begun to implement experiential learning strategies and "wouldn't have done it had it not been for this process" (75:64) .

The committee decided to require students to complete an experiential learning course. The committee decided that flexibility for students in this choice was important, so the requirement is that students must complete either an internship, a study abroad experience or an undergraduate research project. Faculty members noted that there was a good deal of experiential learning included in the new curriculum, and generally felt that this was a positive move.

A necessary corollary activity to teaching is assessment. Many of the teaching discussions also involved alternative assessments, how they were done and what sort of grades if any could be given based on the assessment. One faculty member summarized the discussion by saying, "I have learned that there are other ways of seeing how students are doing" (49:22). Taking things a bit further, he suggested a strategy for getting broad adherence to alternative assessment strategies, "I may be cutting off my own head here, but maybe take away scantrons" (49:25). For some of the classes in the new curriculum with large enrollment, faculty who taught these classes thought the new

techniques were “not appropriate for a course of that size” (43:53). Another professor took the student’s perspective, saying “Students don’t want so much individual attention” (6:42). Another faculty member benefitted from the assessment discussion, “I feel like I am learning a new language that I didn’t have before” (10:33) and that this faculty member had “formalized my knowledge about assessment. I don’t do it as well as I could or should, but I am better” (10:59). For the new curriculum, the committee has yet to determine the assessments that will give them the information they need. “In the next 4 to 5 years, I think that we will develop our expectations of what they should remember and know and be able to do 5 years down the road, after they graduate” (93:58). The committee is currently working on formulating what those assessments will look like.

One major impact on the process was a reduction of faculty members due to the offer of early separation by the university as a means of achieving mandated budget cuts. There were six faculty members in this department who took the offer. Three of these had major responsibilities for teaching undergraduates. With all of the development, the committee was urged to think in ideal terms. The committee was reminded time and time again about the limited teaching resources available because of the retirements, and one faculty member criticized the ideal-world approach.

> There was no assessment of teaching capacity. We really did nothing to get a feel for the task resources, whether or not we were going to be able to handle what we decided upon. There was no consideration of teaching resources whatsoever. (24:28)

The strain between teaching and research caused several committee members to wonder how the balance of teaching and research appointments would be addressed under the new curriculum. "I'll be happy when this university gets pressured to be a research university again" (47:24), was how one faculty member summarized an explanation of statewide political and financial pressures and how they express themselves in the department. Many faculty members expressed fear about staffing shortages. "I still am worried that we won't have enough people to teach all the classes" (75:75).

While the time for implementation is nearing, teaching assignments are being made and preparations for new classes are underway. Even though there is still apprehension about teaching assignments, these faculty members are more knowledgeable about their peers' teaching strategies, about experiential learning techniques and the issues left to departments undergoing budgetary constraints.

Student Impacts

Faculty in this department know more now about the department's students than they did previous to the project. They know more about the needs students have in relationship to the employers who hire their graduates, they know more about what kinds of students find their department, and about the potential effects of increased rigor and narrowing of the curriculum on students in their department.

Faculty members in this department know more now about the needs of their students relative to the needs of society. The outside data collection process called for input from many different sources including employers. Many of those interviewed

identified the goal of the project as "as a need to be relevant to the educational needs of students" (93:2). Many faculty members elaborated further on this idea. One said this project was important because "Students need to be prepared to deal with the serious problems we face like feeding people and maintaining environmental quality" (79:5) . Another provided a specific instance where student knowledge gained in this department is relevant to the informational needs of society.

> When some NGO (non-governmental organization) comes out with some statement about [hot topics in this field], students need to be able to have some kind of knowledge about it to be able to say whether their claim has any merit or whether it doesn't. It's this type of knowledge that our students need to be prepared with for society's sake. (75:85)

Because this department had not reviewed its curriculum in a systematic way in many years, the need for staying relevant was important for committee members. The committee discovered through the process that the bureaucracy structures necessitated by the university approval process work against updating curricula in meaningful ways to stay current with newer developments in the field.

> When it takes three years to change a class title, that goes against the idea of changing in order to be current. If you put today's cultural issues as part of the class title, it's difficult to be current. It's like the Arab Spring, if you submitted it as a class today, by the time it became a class, it would be history. It is no different with drought right now, by the time we got that through, we would be dealing with flooding. (25:11-12)

Frustrations about bureaucratic demands and constraints affected the meetings especially toward the later phases when preparations were being made to present the proposal and the syllabi were exhaustively reviewed for inclusion of all required elements. Since there was such broad support for the concept of relevancy to students, the need was clear to the committee. The need for relevancy drove the work of most committee members. They have addressed that need by creating a new curriculum.

The department head stated that the goal of the project,

> has always been to develop a curriculum appropriate for our undergraduates that was challenging and interesting. Well, I hesitate to use 'enticing;' it might be better to label it as 'not boring.' Being labeled as boring to 18-year-old high school jargon can get you in trouble as a major. It is a label to avoid. (25:8)

This department has very few students, approximately 150, and for the 2011 school year, welcomed fewer than 5 freshmen. "Most incoming undergraduates are not interested in [this particular] science or [the other focus of this department] for that matter" (43:59a). This comment was followed up with an explanation of how most students follow the interests of a mentor. "There's no one out there doing that for [our field]" (43:59c). This faculty member went on to describe how students in other majors take the introductory course in the department, then become interested in the major. A majority of their students come in their junior year as transfers from junior colleges or from other four-year universities. The department uses an off-site recruiter, but not much was known about the work of this recruiter, nor whether the recruiter was still employed as

such. There was consensus among the committee in meetings that there needed to be an increased emphasis on recruiting at the high school level.

The advisor found himself wondering about how to communicate with incoming students. The advisor shared with me that this project and its pending approval created a conundrum for him when dealing with potential students. "Do I present the old curriculum, with the old classes, then when they get here, they feel let down that the classes I told them would be here aren't offered anymore?" (49:43) "I feel like I'm not being completely honest with them" (49:45). It was important for the committee ensure that the sequencing of courses not hinder a transfer student from graduating in two years. The advisor has power over substitution decisions with courses that might transfer, and

> at least on paper, students can get through, but in reality, I'm concerned about the prerequisites like the Gateway course. If it is only offered once a year, then that is an issue for transfer students, the people who are our meat and potatoes. (49:40)

These concerns will be addressed as course teaching assignments will be made before this curriculum goes into effect.

There was similar concern related to the rigor of the new curriculum. "As word of mouth gets out, and it will, about the curriculum and the courses, will it scare or attract students?" (49:36) These comments were followed by references to time, and that time would tell whether the change would bring more or less rigor and students to the department.

The committee discussed at length certain elements of the program related to rigor. A major point made by some on the committee was that calculus was necessary for some of the work required in the upper level courses in the major, but there were others who explained that not all of their students could handle the demands of taking eight hours of calculus, and that six hours of business math was the proper choice. Faculty who had extensive experience with undergraduates explained that some on the committee had "unrealistic expectations of what undergraduates are like….They don't see the student struggling to maintain a 2.2 or lower. They have an unrealistic expectation of their abilities" (43:27). After discussing the capacities of the average undergraduate student student, the committee agreed upon the business math direction.

Another professor had an experience with students leaving a course as the expectations in that course were raised. He explained that he had adjusted the course based on some of the concepts the committee was discussing related to teaching. He was "having the students assuming responsibility for reading the assignment before they came to class. The students didn't like it, and they killed the class. They started taking another professor" (79:22). The advisor has seen similar distaste for courses that have the extra commitment of labs associated with them. "I am also interested to see that students want this, but the second you tell them a class has a lab, they don't want to be in the lab" (49:20). With the increased focus on experiential learning and the question of rigor and its effects on student perceptions, the department will have to wait to see what effects this will have on students.

Faculty members also hit some problems when it came to staying within the 120 hour rule, stating that undergraduate programs must stay below that number of required credits. There were several times that the committee members expressed frustration with this rule as the program course sequences were being discussed. This put the committee in the position of prioritizing the courses and experiences they thought students most needed to be ready for a career.

One faculty member explained the implications these university and department level choices, such as those made that kept the programs in this department below 120 hours, have on the mindset of students. He explained that the 120 hour rule caused departments to focus their programs on their own courses and limit the number of courses in other departments.

> Students lose exposure to broad knowledge within the university and particularly the college, and students saw less and were exposed to fewer things…This was a terrible mistake. Students don't get to shop around, they don't get to look around at other things. (43:12)

Other faculty members talked about how this narrow focus on the part of students influenced their own courses. "I see reluctance among some…students engaging in subjects [not directly related to their major]. I wish they weren't so narrowly focused on [their own major] and would realize some of the other subject matters we cover are important too" (75:84). The committee addressed this phenomenon by discussing ways that they could make their course material appropriate to the interests of all of the students in each of the three specialization areas in this department.

These faculty members now know more about what kinds of students find their department. They also are much more aware of the capacities of those students to handle the requirements, although time will tell what effects the change will have. The committee also discussed ideas related to narrowing the curriculum and made some choices between needing depth in the field, balancing that with having few credit hours to build that depth.

Reflections on Change

This department faced a change that not many in the department had experience handling. Interviewees were offered the chance to reflect on the level of openness to change they saw in the department.

> Many in the department had negative experiences with curriculum change in the past. Many of us have been here long enough to see attempts at change and have nothing happen. This is the case for a majority of the committee. (79:16)

There had been review efforts on a small scale at multiple intervals. The last one mentioned by any faculty member was in the 1990's. One faculty member described a failed attempt at program change, blocked by another department's proprietary concerns, as "messy and bad, so I was hesitant" (43:6). Since then, most faculty described being happy with what had developed over the years.

When faculty members were asked about the general attitude toward change in the department, mixed responses were received. Some committee members described the department as being "a pretty conservative people" (43:30) and "pretty fixed" (59:53). Some faculty members reported that they "[didn't] embrace change right away,

and there are a lot of people who are the same way" (75:19). Other faculty members said they thought people were "open" (57:13), and "I'm the kind of person who always likes finding new ways to do something" (97:21).

The project committee represented a wide cross-section of faculty. Many of those who were reluctant to change talked about how beneficial the interaction between all of the committee members was to bringing people along in the process. One faculty member commented,

> I had heard that it was a place that was stifling, and anti-change, but that was when I got here. As we started on the project, a lot of the older faculty had the attitude that they didn't want it to happen. But every person, minus one exception, came with new ideas, but they were all very different. (92:12)

The one person this comment refers to was a professor who opted out of the process in the earlier stages, just as enthusiasm for the project was growing. Some other faculty members disengaged from the process because they were retiring, and others decreased their participation over time as their contribution was finalized. A faculty member noted that "a limiting factor was entropy and the ideas of those people who didn't want to change" (49:8). Another faculty member explained,

> Some of the older among us who didn't really want to go along were able to step out of the way and say that the younger people would probably be the ones to take this curriculum to its next steps. (59:67)

Others wished that more people would have embraced the process more fully. "There were a large number of faculty who just went along with getting it done, and some went

kicking and screaming. Those were the ones who were saying they weren't going to change what they were doing" (93:18).

Faculty spoke about this change in different ways. Some of these same faculty members later said that the experience became valuable for them. "When you really get into things and you figure out that we're not just doing this to bide our time, but this is actually going to do something. I had a change of heart" (59:35-36). Other faculty members addressed the elements of the program that might affect how their own concerns would be influenced by communicating that the change for them would be minimal. "The new class is essentially the old class in new dressing. There is very little change there. It's more of a revamp of things" (49:28). There were also those faculty who were already using elements of the curriculum redesign process in their current courses.

> I prepared my syllabus based on the Delphi. Even my graduate student TA spoke passionately when he was introducing the syllabus to the students. He said that your professor had talked to your future employers, and this is what they want you to know. (10:43)

Almost all faculty members had some remaining questions that were left unanswered. Some questions focused on the level of effectiveness of their teaching. "I know I'm doing the right kinds of things, but am I doing it well enough?" (93:68) Others still wondered about teaching assignments and the number of retirements. "Who is going to teach the classes they've been teaching for so long?" (75:34) There was also concern about the responsibilities of teaching active learning strategies. "Where do we

talk about the burden on the teacher? With our research commitment, and with people leaving, are we overloading ourselves?" (97:50) One faculty member brought up the issue of rewards, and wondered about the "gold star" (92:34) for all of this work. He went on to say that rewards were not necessary from his point of view, but there may be others who might need incentive to give attention and time to teaching instead of to preparing a grant proposal. He went further to list the activities that receive departmental rewards, and described teaching as an activity that is not rewarded. Others also questioned why so much time was spent on this effort.

Throughout the process, faculty members became more open to the process. There were several who were closed at the beginning, but who opened up as the process progressed. Some faculty members still have questions about the change that have yet to be addressed. The committee leader commented later that "[The department] moved along mainly because of the people that bought in" (79:8).

Impact of Leadership

The leaders of this project were successful in leading the committee to produce a new curriculum proposal. These leaders were able to influence the committee during the process, to provide a vision shared by the committee, to help the faculty members maintain a balance between their own specialties and the interests of the department, and to support committee members as they each contributed to the project.

The two committee leaders were both trusted and respected by their peers. Some faculty members grew in respect for the committee leader simply because they "did not know him well before this process" (75:43). Many faculty commented that the

committee leader was “sincere,…patient and dedicated” (24:27) and that he worked hard to complete the project. Faculty also identified the spark for the project as the department head, noting that had he not supported the project, it would never have happened. The committee also enjoyed working with each other, and several faculty members said that “it was the people that made it enjoyable” (57:21).

The leaders provided a vision and structure for others to follow. For the most part, faculty members said that the department head had “a good vision for what it takes to be an excellent department” (92:16). This opportunity was inclusive in its invitation to anyone who wanted to contribute. The leaders were able to provide a model for stepping back from their own special interests and allowing for an approach that took a holistic viewpoint. Most Faculty members described how the “leadership was strong, but my visions were different” (57:24). The shared vision for a great department trumped self interest.

The leadership also sparked the project in several ways. The leaders were out in front modeling innovativeness. The committee leader had already begun implementation of student-oriented teaching strategies. Others noted that the department head was “not afraid to swing the pendulum the other way” (92:16). They also allowed the committee to apply the ideas presented in meetings by the faculty developer in the ways that the faculty members saw fit. This choice to step back out of the process was criticized by some who felt that this was “an inverted leadership model” (24:26) because both leaders came back at the end to make suggestions that altered the direction of the project.

The leaders drew commitment for the project from the faculty committee. One faculty member who stayed quiet through most meetings remembered "one meeting where he looked straight at me and said, I know you have something to say about this" (57:23). They also depended on the committee to produce the curriculum proposal, bit by bit, as they were each assigned the role of developing a syllabus for a course in the new curriculum.

The leaders of this project were effective in leading the committee to produce a proposal for a new curriculum, when the task was simply to review the curriculum. Through their work with the committee, providing a model, sparking the project and drawing out faculty commitment, they were able to accomplish their goals.

The experience of this curriculum project helped the department know itself better in many ways. Faculty know more about how to develop curriculum, how their own teaching skills influence their peers, the potential impacts of this change on students, and how the leadership has influenced them as a group.

Discussion

This case highlights the fact that a department with little experience or desire for change can produce a new curriculum proposal that is based on data from outside sources, that is supported by outside entities, and that produces change toward student-oriented teaching strategies which will likely impact the department in the future. The department does know itself better after going through the project. Of course, it takes time to see improvement and changes in a departmental system such as this. These faculty members have very little experience with curriculum and course development,

and reflected resistance to these ideas. These difficulties are not to be underestimated or understated. This kind of process in a department such as this is an innovation which means that acceptance of the process will take time (Rogers, 2003).

The process used by the department was helpful to faculty members who had past experience with failed projects. The support provided by the campus center for teaching and learning office was critical to the success of this project. Wolf (2007) suggests that these kinds of project be supported by an outside support person who provides structure and direction as well as serves as a resource person for advice about the project. It is important for departments to know that these resources exist and that faculty consider this support to be invaluable to projects like this.

Faculty members teaching in the department are more familiar with a broad range of teaching strategies. Qualters (2009) used a structured dialog to produce faculty change in teaching, and the discussions encouraged by the faculty developer were helpful to achieve change. There were several faculty members who mentioned that these discussions should be continued. Faculty members still had questions about the kinds of assessments that would yield answers to their questions about the quality and kinds of activities that get at optimal learning. Lightener and Bernander (2010) reported similar feedback based on their years of experience with faculty development projects. Lightener and Bernander (2010) also reported that faculty they had worked with thought that the time spent on alternative strategies of teaching and assessing was perhaps prohibitive. Faculty who are already implementing alternative strategies reflected this,

but also reflected that using these strategies became easier with time as the semesters progressed and activities were used over and over.

Change in teaching will affect students in the department. Faculty members were confident that the curriculum would meet the needs of students but were concerned about whether the students would be ready. Some criticized the bureaucratic structures of the university for not being flexible enough to allow departments to keep their course offerings current, something Kotter (1996) warned about. Kotter (1996) described how structures can hinder change, and the layers of bureaucracy and approvals hinders that, but also provides departments time to warm up to the change, make teaching assignments, and allow those faculty members to make adequate preparations.

Faculty members were mixed in their reflections on change. Some warmed quickly, or had already begun to implement innovations before the project began. Others were slow to adjust and to accept that this change would be beneficial to the department. Faculty developers should be aware of differences in response to change (Rogers, 2003). Dobbs (2000) recommended that faculty should be exposed to both verbal and experience when facing change like this. The faculty developer's continual bringing of new ideas and the discussion of experience, both successes and failures, in the meetings brought these two kinds of knowledge together. Faculty members who were slower to change noted that they needed extensive meetings to help them come along in the process. This hints at Zayim et al. (2006) who found that earlier and later adopters had different training needs. Faculty developers should become aware of these

differences and implement a developing plan of training that includes addressing these differences in various ways throughout the project.

The project leadership was effective. They were able to provide an innovative environment through being supportive and through providing a challenging task (Ekvall & Ryhammar, 1999). They were able to provide the necessary resources to accomplish the project. They delegated tasks, spreading out the responsibility and the buy-in throughout the committee. They were able to communicate a vision for the department that not everyone agreed with, but that they were able to stand behind in the end. Faculty members increased in trust and respect for both leaders.

This department has deep knowledge of the curriculum change process after completing the process. This has allowed them to understand their own department as a whole, and to understand and apply different teaching strategies. The committee was able to think through how these changes might affect students and what kinds of students they would need to attract to their department. Interviews provided committee members the opportunity to think about their own response to change and how the leadership affected the project. They will be able to walk forward into the implementation stages with this new knowledge.

Perhaps the most important lessons learned from this case revolve around the support system, the leadership and the discussion forum of committee meetings. Faculty repeatedly stated that it was critical to have help and support from the teaching support office, and that this support was the element that made a difference between the success of this project and the failure of past projects. The effectiveness of the leadership at

delegating and supporting faculty members in working out the applications of new knowledge were also critical. Delegation spread the ownership and the burden of the project's success, as well as provided a broad-based momentum for the project. This also put into play a time constraint on thinking about the application of new ideas. By providing deadlines for course proposals to be discussed in committee meetings, faculty members had a limited amount of time to deal with the new ideas and come to terms with them. Discussions among faculty about teaching strategies were also critical and may become the most important feature in promoting this change. Discussion promoted awareness of and understanding about new strategies. Without so much focus on what the faculty developer called just having the conversation, this change might not have been so readily apparent.

Limitations and Future Research

This study was limited by the single-case approach. Although single-case research allowed an in-depth knowledge of this case to be gained, it would have been advantageous to include multiple departments. Future research should explore similar issues in multiple departments to explore the experience of others and compare that to these experiences.

Any additional research could expand on the findings of the study and should explore further the unanswered questions and concerns of faculty at this point in the project. Exploration of these topics could help faculty developers understand better how to address these questions in a manner that helps faculty move toward full implementation (Hall & Hord, 1987). Researchers should also explore the leadership

dimension further. If transformational leadership helps organizations in times of change, then research should explore leadership of these projects to confirm the extent to which transformational leadership practices are being applied in these cases (Jung, Chow & Wu, 2003; Jung & Sosik, 2002). There were mixed responses to change, and research should examine what kinds of similarities and differences exist between faculty during such projects (Rogers, 2003). A follow-up study during implementation stages of this project should track changes in the curriculum implementation (Hall & Hord, 1987), and to track whether teaching adjustments result in higher student evaluations (Gibbs & Coffey, 2004), and to encourage faculty members to dialog with students about how a teaching change will affect students as they go through the course (Kreber, 2001).

CHAPTER III

TRANSFORMATIONAL LEADERSHIP IN CURRICULUM CHANGE PROJECTS

Introduction

Curriculum change projects require strong leadership to be successful. Curriculum change projects require self study, data driven decisions and change in content and pedagogy (Wolf, 2007). Academic leaders must provide vision, sustain support, and navigate the change process while balancing the needs of faculty.

Transformational Leadership

Transformational leadership practices (Burns, 1978; Bass & Avolio, 1994) show promise when considering the effectiveness of a leader during times of change. Change leaders initiate influence in the desired direction, cope with uncertainty, and show willingness to try new things are all necessary pieces of a change strategy. Howell and Higgins (1990) reported that transformational leaders and change agents attempted more influence, tolerated more risk and were higher in innovativeness than transactional leaders and change agents. Jung, Chow and Wu (2003) found that the leader's transformational style was closely related to the innovativeness of the organizations they led, the more transformational leadership exhibited itself, the more innovative the organization. Transformational leadership style seems then to be the appropriate leadership style for times of transition in organizations. Academic leaders create a climate within their departments that either promotes change or inhibits change (Ekvall & Ryhammar, 1999), so the choices a leader makes during times of transition, insofar as

they influence the mood, behaviors and values of the faculty members, are a critical piece of leading during transition.

Transformational leadership (Burns, 1978; Bass & Avolio, 1994) consists of four component parts including intellectual stimulation, individual consideration, inspirational motivation, and idealized influence. Each of these has implications for change leadership.

Intellectual stimulation by transformational leaders is expressed in three primary ways (Bass & Avolio, 1994). The leader's own creativity and innovativeness is an important factor. If the leader is aware of new approaches and new products, then it is more likely that any innovations will be brought into an organization by that leader (Rogers 2003). Oldham and Cummings (1996) found that a creative work context was an important predictor of a creative work force, reinforcing the concept that a positive, creative organizational climate is important for a leader to maintain (Ekvall & Ryhammar, 1999). Groups with leaders using transformational models scored higher on the creativity measures of fluency and flexibility, the overall number of ideas and the number of categories those ideas fit into (Runco, 2007), than did groups with transactional leaders (Jung, 2000). Transformational leaders can influence their work context to be more creative because they are modeling and expecting innovative behavior.

Leaders exhibit intellectual stimulation by challenging the belief systems held by their organizations (Bass & Avolio, 1994). Higgs and Rowland (2011) indicated that a change leader needed to push change just enough to break negative patterns within their

organization without risking losing people by going too far too fast with change. By challenging the long held patterns of belief and behavior, the leader pushes the performance edge of the organization's members. The leader must be careful about how much change is requested, or run the risk of changing the organization so much that the members no longer find themselves part of the organization's mission (Bisel & Barge, 2011). In this way, the leader can maintain the tension between the status quo and the change, drawing people along in the direction of the innovation.

Leaders also provide intellectual stimulation through supporting members of the organization when they try out new ways of dealing with things (Bass & Avolio, 1994). Although the leader might not have the same vision as the organization's members, the leader will support the ideas of the followers as they try to work out the specifics of the change. The leader must be willing to support change in the present moment, and not just consider change as a future state (Higgs & Rowland, 2011). Higgs and Rowland (2005) found that change leaders who consider change to be a linear process were less successful than change leaders who consider the process to be complex and nonlinear. As members attempt to appropriate the change to their specific needs, the process will be full of complicated questions as well as fits and starts. The change leader must be supportive of these efforts as the individuals begin to deal with change.

The second component of transformational leadership is individual consideration. Individual consideration is expressed by leaders in several different ways, including being supportive of and listening to individual concerns (Bass & Avolio, 1994). Leaders who are supportive of individual followers will have more creative work groups

(Oldham & Cummings, 1996). Support for an individual's ideas is a factor in creative work environments (Ekvall, 1996). Transformational leaders will provide individual consideration by coaching and advising, rather than being overly directive and specific. Change leaders must be able to facilitate change rather than mandate and police change (Higgs & Rowland, 2000). By taking a facilitating stance, change leaders can help actualize their followers by delegating to them tasks that increase their stake in the change. Higgs and Rowland (2011) suggest that one primary purpose of a change leader is to direct the anxious energy of the group toward the larger goals of the organization. Through delegating change tasks such as designing a course for a new curriculum, the group member is empowered within the process of change to contribute toward the larger mission of the department. Transformational leadership has a positive relationship with empowerment, which is also positively related to the collective efficacy of the group (Jung & Sosik, 2002). However, it is possible for a leader to delegate too much to the individuals and to the group, thus losing a cohesive sense of mission and purpose. This can be combated through continually cultivating relationships and trust within the group (Gebert, Boerner, & Lanwehr, 2003).

Cultivating a sense of trust is the heart of the third component of transformational leadership, idealized influence (Bass & Avolio, 1994). The transformational leader is a trusted and respected member of the organization. The trust the leader enjoys has to be cultivated and carefully maintained (Gebert et al., 2003). One means of attaining this kind of trust is by promoting a vision and mission for the organization. Farquhar and Surry (1994) recommend that an organization perform an assessment of the need for

change as part of a larger adoption assessment before any change efforts are in place. This allows the leader to make a clear case for the need for change, leading to the formulation of clear goals for the organization. A clear sense of purpose and mission within an organization can help a leader and the followers know that they are all working toward the same goals.

Setting high, attainable goals for an organization through establishing a vision for the organization communicates the standard of attainment for the leader and the organization's members. Transformational leaders have high standards for themselves, and this translates into high expectations of their followers. Leaders can also exhibit idealized influence through maintaining high standards of conduct. High standards of conduct for oneself as a leader are then communicated to the followers through the final component of transformational leadership, inspirational motivation (Bass & Avolio, 1994). Keller (1992) has demonstrated that transformational leaders have higher quality projects that stay on budget when compared to transactional leaders. It is possible that transformational leaders' expectations produce these high quality results.

The vision that transformational leaders develop with their organizations should be shared by all members of that organization. Followers who shared the values of the leader will buy into the leader's vision more quickly (Jung & Avolio, 2000). Shared vision also reduces indecision and motivates action (Kotter, 1996). This vision should also be shared as often as possible and in as many ways as possible to ensure that the organization's members have a clear understanding of the vision in that they share. (Kotter, 1996).

Change requires new actions on the part of an organization and its members, and those new actions might not fit with the members' current job descriptions. If members are called upon to fulfill responsibilities that are outside their normal job responsibilities during and after the change, trust in the leader is necessary (Jung & Avolio, 2000). Taking on new roles outside of a faculty member's normal tasks often needs to be incentivized in some way (Podsakoff, MacKenzie, Mooreman & Fetter, 1990). Sharing a vision and sense of purpose with the leader inspires followers to transcend personal self-interest and the limitations of their job descriptions for the larger mission of the group if that trusting relationship with the leader is present. This sense of team spirit reflected by the leader to the followers demonstrates the commitment to the change and to the organization by the leader (Higgs & Rowland, 2000) and should draw the organization's members along toward the innovation.

Curriculum Change

Curriculum development models emphasize a studied, careful approach to developing experiences, courses and curricula in higher education. One such model is the model developed by Wolf (2007). This model occurs in three stages: visioning, development and a phase that includes alignment, coordination and further development. The visioning phase includes assessing the current curriculum through a data collection process, defining the objectives of the program in terms of what the ideal graduate will be able to accomplish, and identifying content and educational experiences that will lead to those outcomes for graduates. After these things have been determined, curricula are developed to match the content and the outcomes to courses. This development focuses

on both existing and newly developed courses. Finally, alignment between the program's goals and the course outcomes should be checked. Resources should be made available to ensure implementation. This model encourages a cyclical approach where the further development of faculty feeds into the continuous assessment and development of the curriculum. Curriculum projects should always have assessment in mind when developing new curricula so that the assessment data can provide continuous feedback and provide a basis for continuing improvements to the curriculum (Diamond, 2008; Fowler & Sandoval, 2011).

Curriculum projects occur on many scales. Hodge et al. (2011) described how they revised their university core curriculum with the goal of increasing student learning and engagement. This was an expansive project that involved the whole university. Brumm et al. (2006) described the process they used to collect data and align their curriculum with accreditation standards within their department. An approach similar to this was used by Bliss (2007) to outline the goals of a graduate program. Buchanan, Hibberd, Kropp and Damron (1994) used a similar process of collecting data from alumni and employers to help define their departmental outcomes. Collins (2008) explained how just one class was altered to offer more of what students were looking for in a course from her department, and the effects of those changes on enrollment in the class. Curriculum change on any scale can be accomplished using models like this (Wolf, 2007; Diamond, 2008) to accomplish a number of goals.

Leadership style has direct bearings on the change experienced by members of an organization. Transformational leadership has clear implications for the effectiveness of

change leadership, as outlined above. Transformational leadership has been discussed extensively in business (Higgs & Rowland, 2000; Kotter, 1996) and studied in task-oriented workgroups (Jung, 2000; Jung & Sosik, 2002), and curriculum change has been discussed both prescriptively (Wolf, 2007; Diamond, 2008) and descriptively (Hodge, Keeshan-Nadler, Shore, & Taylor, 2011). Examining leadership in the context of curriculum projects will fill in a missing piece for the study of leadership in this particular context, as well as fill in a missing piece for those leading curriculum review projects. Because of the double need for the body of transformational leadership literature and for the body of curriculum change literature, the purpose of the study is to describe the faculty perceptions of leadership through the course of a curriculum redesign process.

Methods

This qualitative study explored the leadership of one curriculum redesign project. Because the phenomenon of leadership is complex, and because the individual experience of being a follower is subjective, it is important to study this from a qualitative perspective, allowing respondents to provide their own subjective feedback. It is important to study leadership from a qualitative perspective because it allows for the followers to express their individual responses to and impressions of the leadership of projects. This case study allowed exploration of the leadership of curriculum projects in depth as it was occurring, using multiple sources of data (Yin, 2009).

Data was collected using observations, fieldnotes and interviews. Observations were conducted during the time that the researcher had an office in this department,

during the year that the researcher provided support for the project. This year-long service provides a measure of trustworthiness for the study, prolonged engagement (Merriam, 2009). Observational data also included the minutes generated by the researcher during the meetings. Fieldnotes and a reflexive journal helped to record thoughts about the observations and meetings. This form of reflexivity is a means of achieving trustworthiness (Merriam, 2009).

After the department-level committee work was completed and the proposal had been passed on to the university for approval, members of the committee were interviewed about the project. The protocol based on literature on transformational leadership and change theory was developed, but it was also open enough to elicit many kinds of responses.

Interviewees were purposively sampled to achieve maximum variation (Patton, 2002). This strategy was selected to represent the spectrum of faculty experience throughout this process, and to achieve a high level of rigor in the study (Merriam, 2009). Interviewees had served on the committee in some capacity throughout the life of the project. The committee's tasks included collecting data from stakeholders to use as a basis for student learning outcomes, formulation of those student learning outcomes, creation of course syllabi that included the student learning outcomes, and serving as a communication channel to the other members of the department. Because this project occurred in a higher education setting, the leaders of the project included the department head, the committee leader selected from among the department's faculty, and a faculty developer. In all, 14 people were interviewed.

The interviewees included four assistant professors, two associate professors, six full professors, the department head and the department's undergraduate advisor. Two of the respondents were women. The point of data saturation was reached as the thirteenth and fourteenth interviewees generated no new categories for the study. To ensure confidentiality, each participant was assigned a two-digit random number identifier. Each quote provided by an interviewee is first identified with this two-digit code, then the unit number is identified after the colon. For example, the tenth unit of participant 20's interview would be coded 20:10.

The data were analyzed using a method known as analytic induction (Patton, 2002). This approach allowed for the sorting of the units of data according to an extant theoretical structure. This structure accounted for most of the interview data. As the interviews progressed, multiple peer debriefing memos were developed and peer debriefing meetings were held to confirm the findings and clarify the fit of the theory to the data, addressing different explanations for the data (Yin, 2009). Decisions about the categorization of the data as well as other insights were recorded in a methodological journal and are reflected in the peer debriefing memos (Appendix D) and serve as an audit trail (Merriam, 2009). One peer debriefer is a faculty developer with expertise in curriculum design, while the other is an expert in curriculum, leadership and change theory. Peer debriefing is another way to achieve trustworthiness in a study (Merriam, 2009).

Results

The context of this change is a university department undergoing curriculum change. This department had not reviewed its curriculum in more than 20 years, and only pursued this course of action based upon the recommendations of an external review panel. As the curriculum review process proceeded, budget cuts were mandated for all state supported entities, resulting in departmental cuts and the loss of several faculty members in this department to an offer of early separation. These pressures heightened the tensions surrounding the importance of this project for the survival of the department. This transition will set the tone for the department for years to come, and the leaders of the project were successful at designing a new curriculum suited to their needs and the needs of their stakeholders (Jarvis et al., 2012). This department will be implementing curriculum changes in the fall of 2012, pending approval.

After the external panel recommended the review, plans were set in motion to begin the curriculum review process. The leaders were identified as the "one promoting factor" that "set the whole thing in motion" (49-7). In fact, if the department head not gotten behind the project, faculty reflected that the project would not have gotten off the ground. One faculty member questioned the motivation behind the project. He asked about the genuineness of the rationale, and talked about how the administration might "check this off their list" (24-51) and move on to a different position while leaving the faculty to deal with the implementation. However strong this impression was, other faculty commented on how strongly the leadership wanted the project, and that if the leadership had changed the direction at any point, the project would have stopped.

The next step in promoting the curriculum change process was selecting a committee leader. The department head selected someone who was a full professor, who had been with the department for many years, and who had a solid record of performance in the department. The committee chair needed to be someone who was "noncontroversial, someone you can trust because they do have lots of power" (75-25). One faculty member noted that the committee leader had not had much of a role in the department as a whole, but that once he was engaged by the department head to lead the project, he showed a great deal of enthusiasm.

Another senior faculty member who had been extensively involved with undergraduates throughout his career was not sold on the idea of the committee leader's selection at the beginning. However, he says, "I went from a skeptic to a believer" (43-40). He went on to comment that this shift had occurred primarily because of the approach the committee leader took in the early stages of the project. This approach encouraged open discussion of teaching, questions about the curriculum change process itself, clarifying values and assumptions about undergraduate students, and promoting understanding of the goals of the project.

The consistent drive and selection of a good committee leader supported the early stages of the project. The committee began their work by drawing support from outside their department. They invited a faculty member from outside their department to assist in collecting data from stakeholders, and they enlisted the support of the campus center for teaching and learning to help give structure to the review process. After collecting data from stakeholders, committee members organized the data, and distilled

twelve student learning outcomes for their department. During this phase, faculty who were involved with the committee at that time mentioned that the vision for the department was strong. One professor commented that "He did a good job sharing his vision for where he thought we should go" (93-30). Another faculty member summarized this by saying that the leaders want to "have a great department" (92-3). Faculty members who were not active on the committee in those early stages reflected that they did not sense that the vision was strong, and wanted the leaders to be more specific about what it was that they wanted. The meeting minutes reflect that during the middle stages, the committee leader repeated the purpose and goals of the project during several meetings. The committee leader emphasized that this project was aimed at providing the best education possible to the best students the department could attract.

The committee was able to shape the project. One faculty member appreciated that the committee leader began the process "iron(ing) out differences in philosophy and approach" (43-42). This kind of discussion allowed faculty to begin to understand where the others were coming from in their approach to teaching and to the project. Some faculty reported that discussing philosophy and approach to teaching outside of the committee meetings helped the project, "Sharing that…helped provide even stronger leadership" (93-43).

To conclude the early stages of the project, the department held a one day, off-site faculty retreat to focus solely on the curriculum project. During this retreat, the leaders outlined the review process, described in detail what they wanted to happen during the retreat, and split the department into the three subject-matter groups that

compose the department. In these groups, the faculty began to formulate an ideal slate of courses based on the student learning outcomes the committee had defined.

Throughout the project, the committee continued to meet on a regular basis to refine and fill out the courses that were conceptualized at the retreat. During this phase, the committee members were developing courses and syllabi as well as discussing appropriate learning activities and assessments for those courses. This process took several months. Faculty described the leaders as having the drag them through, but that they were also like cheerleaders, and that they were encouraging. Faculty appreciated that the leadership gave direction and kept providing feedback on their work. "With all of the time spent with y'all, and all of the feedback we got from each other, it makes it easier to take a syllabus and find a textbook and go forward with that" (59-33). One faculty member noted that even though there might be problems implementing some of the bigger plans, that if there were to be a problem, "The leaders will fix it. They will find a solution" (49-35).

The committee work was not all smooth. The committee work was directed by the committee leader and a faculty developer from the teaching and learning center on campus. Committee attendance was not consistent during the middle stages of the development phase, and therefore the committee spent a good deal of its time reviewing past discussions for those who had missed previous meetings and the decisions made in those meetings. One person who had attended a majority of the meetings commented, "rehashing points from the previous week made things drag out" (75-28). This deviation from the agenda for each committee meeting allowed for open discussion, but one

faculty member noted that "this was left pretty wide open, and we were free to open any cans of worms that we wanted, and go down all the dead ends that we wanted" (24-26). The meeting minutes reflect this emphasis on past business. In some meetings, as much as two-thirds of the meeting time was occupied by discussion of old business. After several weeks of this pattern, the committee leader made a choice, announcing that if there was to be discussion of old business that it should be done outside the meeting time. This kept meetings on a more timely schedule and the rate of decisions on new business was faster.

Faculty also noted how the communication could have been better during these developmental phases. One faculty member noted that he would have appreciated more information, "the communication could have been better as far as what was going to happen" (97-38). A few others noted that they were not as prepared as they could have been for their share of the task because they "would just zone out" (75-24) during discussion of some elements of the project. During one committee meeting, a faculty member became agitated about how the department was positioning itself in reference to a benchmarking study that was being prepared as a part of the review. This faculty member disengaged from the process, and several others were concerned about how he had been affected by the communication decisions by the leadership. Later it became evident that this person disengaged because of reasons not related to these communication issues, but that did not prevent other faculty members from perceiving the disengagement as a communication problem.

At this stage in the process, the leaders both refrained from putting too much of their own influence into what was being developed, "My journey has been to let go of my own preconceived ideas and opinions" (79-17). However, during the later stages of development, both stepped in to put their stamp on things. Some faculty expected the leaders to have done more of this, "I wish he would have stepped in and made some decisions when there was a stalemate, but he likes shared governance. I wish he would have left a little bit more of his footprint on it" (75-47).

Other faculty did not appreciate the influence the leaders had, and felt that the leaders directed things toward their own interests. Indeed, both stepped in during the finalization stages and provided direction for courses that were in their specializations. One of the leaders commented that the curriculum would not be the same had it been solely up to him. Several faculty members mirrored this sentiment, noting that while the leadership was strong, their personal visions were different than what went into the final curriculum proposal. Almost universally, however, the faculty noted that the review was good and would "be a positive improvement" (10-53).

As faculty reflected on the project, they appreciated the inclusive approach of the leaders who "allowed everyone to contribute who wanted to" (75-44). One faculty member noted that "it has been my business to be involved" (97-11) with various opportunities in the department. A younger faculty member noted that he and his peers were able to have "the opportunity to design the courses we will be teaching for the remainder of our career here" (24-12) In fact, other senior faculty noted that it was the younger faculty who were the "real core of the project" (97-25b) and got to influence the

process. One newer faculty member who admitted to not speaking up as much as desired, noted how in one meeting one of the leaders "looked straight at me and said, 'I know you have something to say about this.'" (57-23). So, even for those who were not as vocal or eager to speak, their ideas and input were still valued and encouraged. One faculty member reflected that the leaders "did a good job bolstering people" (97-39c) during the process. The leaders were supportive of newer ideas, and supported the positions of the committee as the final proposal went forward.

The committee leader was singled out by most faculty as the leader who bore most of the project's burden. Several noted that this project would not have "gotten done without him" (92-21b). One faculty member noted how "sincere and dedicated" (24-27a) the committee leader was, even though "he was overloaded during this process, especially at the tail end of this" (24-27b). Others commented that "his leadership has been fantastic" (57-18) and that they had grown to know and "gained a lot of respect for him" (75-43b) through the course of the process. Faculty also noted that the department head "has really good leadership skills" (92-16a), and is "not afraid to make a change, to swing the pendulum the other way" (92-16c) by initiating a project to take the department in a new direction. This committee is continuing to meet to develop assessments for their new curriculum, and to continue to discuss implementation strategies associated with such a big change.

Discussion

This study found that transformational leadership was present in the way faculty members experienced the leadership of the curriculum change process. Each one of the component areas of the transformational leadership model was present.

One area of transformational leadership defined by Bass and Avolio (1994) is idealized influence. The leaders were role models for innovativeness. The department head drives a Prius in Texas, which was noted by one faculty member as being a quality of a good leader, that he would be committed to innovativeness in this public way. The committee leader was already implementing student-centered teaching strategies. The committee members praised both leaders for the hard work they do. Many reflected that this project would not have happened without the committee leader's service and without the department head's decision to undertake this effort. Many respondents talked about gaining trust and respect for the committee leader through the course of the project. Transformational leaders cultivating trust among followers were able to get their followers to pursue tasks outside their defined roles (Jung & Avolio, 2000; Podsakoff et al., 1990). The tasks of the committee were added on to the responsibilities of the faculty committee, and trust in the leaders themselves as well as the vision made this possible. One faculty member reflected a great deal of trust in the leaders being able to fix any problems that were to pop up through the course of implementation, but there were those who questioned the motivation behind the project in a way that questioned the genuineness of the leadership. This could have resulted from not sharing the vision and purpose often enough throughout the process as Kotter (1996) warned, though the

vision and purpose was shared and elaborated upon in numerous meetings. The leadership did, however, push the project and provided a spark that allowed for the development of a vision to meet the challenge of developing a new curriculum. This allowed the leaders to make a clear case for the project, which led in turn to communicating clear goals for the committee (Farquhar & Surry, 1994).

Bass and Avolio (1994) also identified inspirational motivation as part of transformational leadership. Faculty experienced inspirational motivation from the leaders of the curriculum change project. The leaders of this project set a high expectation that the committee would produce a proposal for a new curriculum within a matter of months. Fortunately for the department, most faculty members shared the value that reaching students is good, so they caught on to the potential of the project to reach students more effectively. This shared vision occurred because the value of having an excellent department was shared by the committee and the leadership (Jung & Avolio, 2000). The department head explained that in the statement he made about the faculty being vested in having a good department, and that the faculty knew that they were better off in a better department. Shared vision and mission invited the faculty to engage in making the department even better. This sense of shared vision helped the group transcend their own personal interests. The committee leader described his approach like a journey of letting go of what he wanted, while some committee members stated that although they perceived the leadership to be strong, their visions were different. Even those who wondered about the gold stars and rewards for such work contributed in a positive manner to the project. In this way, the leaders were not only

able to allow the committee to develop their own vision, but persuaded them to let go of those things to accomplish the greater goal of producing a new curriculum that would be a positive change for the department. In this way, the complex and challenging job of developing a new curriculum was met because of high expectations (Oldham & Cummings, 1996) and shared vision. One element of inspirational motivation is emotional appeals. Emotions and emotional responses were detailed by some respondents, but there was no evidence that the leaders provided any emotional appeals in their leadership practice.

Higgs and Rowland (2011) discuss what they term the dark side of change leadership as being a combination of a highly leader-centric approach with a highly supportive approach. The leader-centric behaviors they outlined included control, pressing the leader's views, use of the leader's experience to shape implementation, focus on delivery of tasks, expressiveness and persuasiveness. Practices in the supportive approach include attracting people to the purpose of the organization, keeping the change edge in tension with the equilibrium of the organization, containing and directing nervous energy, and changing things in the present. These leaders emphasized the supportive approach in several ways. They made the project about the department and its need to attract and produce well qualified students instead of what they needed as leaders. They also decided not to push the change edge too much by holding back on introducing too many innovations during the process. They also used delegation to direct the energy of the group, and they allowed open discussion of topics related to the change to help faculty members process through the change. The leaders also

encouraged committee members to share examples of implementation during meetings. This had the effect that others were beginning to change as the new program was being developed, not after the implementation. The leaders also avoided imprinting too much of their own opinions on the project and did not rely on emotional appeals and persuasiveness to guarantee buy-in. In this way, these leaders were able to avoid what Higgs and Rowland (2011) described as the dark side of change leadership and stay in an area they defined as effective transformational change leadership.

Transformational leaders provide their followers with intellectual stimulation (Bass & Avolio, 1994). Faculty members experienced intellectual stimulation provided by the project's leaders. The leaders encouraged the creativity and innovativeness of the committee members by allowing the influx of ideas from teaching and curriculum conferences, from the teaching support office and the faculty developer. Importing any new ideas into a social system will allow those new ideas to diffuse through the system over time (Rogers, 2003). The climate of the department supported this kind of innovation, which helped the faculty members to become more innovative in this area (Ekvall & Ryhammar, 1999; Oldham & Cummings, 1996). The ideas presented by the faculty developer challenged the belief of the department that had built up over time that change was really not possible or wanted based on past experiences with failed projects, as well as the belief that the faculty were happy with what they had. The leaders challenged this belief by committing to this project and following through. The faculty developer introduced new approaches and procedures for developing courses and curricula that were tested and tried. In this way, the leaders were able to keep the

department's positive self perception going while pursuing change. The number of innovations was limited, and other innovations could have been introduced. The leaders discussed this and decided that it would be too much change too soon. In this way, the leaders kept the change going without jeopardizing the whole project by overloading people to the point that they could no longer buy in (Higgs & Rowland, 2011) or to the point that the department's self-perception changed (Bisel & Barge, 2011).

Leaders were able to present the change, helping the committee think through the new situation. Faculty members were supported in their efforts to wrestle with and fit into this new structure through the discussions, through open forums for asking questions, and through the faculty developer's efforts to continually provide practical help as it was needed. Higgs and Rowland (2011) listed willingness to change in the moment as an important capacity for change leaders. The leaders encouraged sharing examples of how different faculty members were already implementing some of the changes that had been discussed in meetings instead of conceiving of the change as being limited in time for the first implementation semester.

The final piece of transformational leadership is individual consideration (Bass & Avolio, 1994), which faculty members included as part of their experience of the leadership of the project. The leaders in this study were supportive of the faculty members as they dealt with a new approach to designing curricula and new thoughts about teaching philosophy that went along with the design approach in this process. The leaders were able to draw out the opinions and thoughts of a committee member who was reluctant to share because of past experiences in the committee, however, the

leadership did not address the concerns about the faculty member who bought out of the process, nor was it widely perceived that anything at all had been done to mend the situation. The leaders also allowed the faculty to absorb the information presented by the faculty developer and did not set any predetermined patterns that their courses were required to match. The courses were up for discussion among the whole committee, and those conversations between faculty served as peer review for those courses instead of needing to please the standards of the leader, they pleased the standards of the group. Oldham and Cummings (1996) identified supportive supervisors as an important factor in having a creative workforce. In this case, the support of the leadership provided space for creativity among the faculty committee. The leaders did provide feedback about how to please the university-level committees and direction about how to avoid trouble with other departments during the approval process, coaching and advising the committee on these things as the work progressed. The role of coach was also expressed through the provision of resources to accomplish the revision process, including bringing in outside support for data collection and to provide structure to the process. In this way, the leaders were facilitating these changes. The ability to facilitate change is a critical change competency outlined by Higgs and Rowland (2000)

The leaders of this project also tried to actualize their followers by including them in the development process. Some faculty members felt that the process would have been less individually taxing if the outside support entity had designed the curriculum for them, and if the leaders would have been more directive in the process. However, the leadership's inclusivity and open invitation to participate provided the

opportunity for people to chart their own futures which promoted such universal goodwill on the part of the committee toward the project. The key to the inclusive approach was delegation; each member of the committee was responsible to some piece of the proposal. However, the department head was the first leader to delegate the responsibility when he chose the committee leader to head up the effort. This spirit of soliciting help through delegation of tasks helped the leaders to direct the nervous energy that some members of the committee felt that gave the committee members a concrete direction for their anxious energies, a skill described by Higgs and Rowland (2011) as critically important in successful change efforts.

One faculty member noted that they were allowed to go down many unfruitful paths of discussion. Gebert, Boerner and Lanwehr (2003) warned that sometimes too much delegation can limit the effectiveness of a group and argued for a balance of delegation and direction. There was perhaps too much delegation and at times too little direction for this committee, considering that the middle phase meetings were dominated by rehashing past business. A few faculty members wanted a clearer expression of what the leaders wanted from the process and criticized the leaders for not being clear enough up front.

Transformational leadership was practiced throughout this curriculum project. The leadership was strong in idealized influence, though the persistence that they communicated the vision and purpose of the project could have been greater. They were also high in inspirational motivation. Faculty shared the value of having a great department and were able to extend their efforts beyond the limitations of their job

descriptions to accomplish this task. The leaders were able to provide intellectual stimulation and maintain trust by pushing just the right amount of change and supporting faculty through the development process. The leaders also used delegation to direct the energy of the group and in this way provided individualized consideration.

Limitations and Future Research

This study was limited by the sample size. This study was conducted in one department undergoing curriculum change. Future research should replicate this study to explore the dynamics of departments undergoing similar change efforts to confirm the effectiveness of the leadership during those processes. This study is also limited to the context under investigation in this case and therefore cannot be generalized to other contexts. The use of thick description in the narrative allows for the reader to determine transferability. Researcher's efforts should focus on other models of leadership and change efforts and examine a framework for addressing faculty rewards for participating in teaching and curriculum efforts. Research should also examine the extent to which emotional appeals play into any change effort.

CHAPTER IV

ADOPTER CATEGORIES, FACULTY EXPERIENCE AND CURRICULUM CHANGE

Introduction

"I was a little leery at first and hesitant. Will it work? I had my doubts. But now I like it, I'm proud of what we've created." (75:86-88) This response exemplifies the majority of people's response to change: reluctant and a little doubtful until the project gets underway. There are those, of course who warm up to change much more quickly, and there are those who never seem to want to try something new. This study examines the different responses to curriculum change and the bundle of innovations associated with that within a department going through the curriculum change process.

Many faculty development programs focus explicitly on improving teaching, which can be a side result of pursing curriculum change. Similar teaching improvement efforts have explored improvements in teaching at the course and class meeting level (Sunal et al., 2001). Sunal et al. (2001) also found that there must be a certain level of dissatisfaction with a faculty member's mental framework for teaching before change would occur. Qualters (2009) reported that her method of critical dialog was able to unfreeze faculty teaching and resulted in reflection about the assumptions about teaching that were tacitly held by the participants. Participants showed willingness to change their teaching methods based on that dialog. Qualters reported that not all of her

participants bought in by the end of the sessions, but that there were some who did come back to her at a later time and request more information.

This time-delayed buy-in points to a critical piece to consider when pursuing faculty development, especially in a department that has not pursued curriculum review in quite some time. Zayim et al. (2006) reported that the training and support needs of faculty participants in a teaching technology program were different based on whether a person came in to the process quickly or slowly. This has implications for faculty developers who need to overcome reluctance and resistance to development efforts while continuing change efforts.

Adopter Categories

Rogers (2003) outlines what he terms adopter categories that represent the spectrum of responses over time to innovations. Innovators, the first to adopt innovations, seek out new ideas and import those ideas into a social system. They can cope with the uncertainty associated with the risk of taking on an unproven idea, and may not be well-respected within the local system because of their regular risk-taking behavior. Early Adopters, are more respected in the local system because of their measured response to change. They serve as role models to others in the system.. The next group of adopters is the Early Majority. This group is the most numerous, and they are very deliberate about adoption. Late Majority adopters are skeptical of innovations, and adopt after a majority of those in the system have proved that the innovation is worthwhile. Even then, their adoption might come because of economic necessity or because there is great peer pressure in the system toward the innovation. Laggards, the

final group, are the last to adopt anything new. They reference the past, and are suspicious of innovations. There must be almost no risk associated with adopting for people in this group to adopt. Table 1 summarizes Rogers (2003) descriptions of the differences across adopter categories.

These generalizations by Rogers (2003) describe differences between earlier and later adopters. Socioeconomic characteristics positively related to innovativeness include formal education, literacy rate, and social status markers such as standard of living and occupational prestige. Social mobility refers to the person's possibilities of achieving higher social status and is also positively linked to innovativeness. Age has no relationship with innovativeness.

Personality characteristics differ between adopter categories. If people are able to deal with abstractions, have a high capacity to cope with uncertainty and risk, show openness toward science, and have high aspirations, they will be more likely to be innovative. If a person can put himself into someone else's shoes, imagine acting in a new role, or communicate effectively with people who are different, they show empathy and will be more likely to adopt innovations earlier. Innovative people are more rational, or more able to commit to the most effective means of accomplishing a goal, and are generally more intelligent. Naturally, more innovative people have a more favorable attitude toward change. Less innovative people are more dogmatic, or closed in their beliefs. In change settings, fatalistic people allow change to happen to them, while others take control and change things themselves. Fatalistic people are more likely to be less innovative.

Table 1
Generalizations regarding differences in adopter categories

Characteristics	Earlier adopters	Later adopters
Socioeconomic		
Age	No difference	No difference
Formal education	More	Less
Literacy rate	Higher	Lower
Social status	Higher	Lower
Degree of upward social mobility	Higher	Lower
Size of unit	Larger	Smaller
Personality		
Empathy	Greater	Lesser
Dogmatism	Lesser	Greater
Ability to deal with abstractions	Greater	Lesser
Rationality	Greater	Lesser
Intelligence	Greater	Lesser
Attitude toward change	Favorable	Less favorable
Capacity to cope with uncertainty and risk	Greater	Lesser
Attitude toward science	Favorable	Less favorable
Fatalism	Less	More
Aspirations	Higher	Lower
Communication		
Social participation	More	Less
Interconnected through interpersonal networks in their social system	Greater	Lesser
Cosmopolite	More	Less
Contact with change agents	More	Less
Exposure to mass media communication channels	Greater	Lesser
Exposure to interpersonal communication channels	Greater	Lesser
Method of seeking information about innovations	More active	Less active
Knowledge of innovations	Greater	Lesser
Degree of opinion leadership	Greater	Lesser

Note. Adapted from Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.

Communication characteristics vary among adopter categories. People who are more socially connected through interpersonal networks inside their own social system are generally more innovative. Those who are more innovative also have more exposure

to change agents and mass media outlets. Innovative people are more cosmopolite, or show connection to social systems outside their own, and therefore have more knowledge of innovations outside their own systems. Less innovative people will rely on others within their social systems for information about innovations, while others will actively seek information about innovations. This allows more innovative people a great degree of opinion leadership, and others will follow what the innovative people are doing.

Rogers (2003) also described the decision process related to adopting an innovation. The process begins with the person gaining knowledge about something new, then the person begins to form some opinion about the innovation. After this, the person makes a choice about whether to try the innovation, then implements the innovation. Finally, the person makes a decision to continue using the innovation or not at the confirmation stage. For Innovators and Early Adopters, the innovation decision process is relatively short, but for Late Majority and Laggards, it takes prolonged period of time.

Not only does time affect the rate of adoption of an innovation, but the features of the innovation itself also have an impact (Rogers, 2003). If the innovation is too complicated and difficult to understand, the adoption process will be slower. If the innovation is not in-line with current systems and values, adoption will be slower. If the innovation does not have a clear advantage over the present situation, adoption will be slower. If adopting the innovation will result in obvious positive outcomes, then adoption will be faster. Finally, if a person cannot discretely try out the innovation, it is

less likely to be adopted. As important as the attributes of an innovation are to the rate of adoption of an innovation across a social system are, the attitude of the people in the social system itself may be a stronger determinant of innovativeness (Spotts, 1999). However, to a certain extent, the attitudes of the people in the social system can be reciprocally influenced by the congruence of the features of the innovation to the social system. If the attributes are congruent, then the attitude of the people is likely to be more open. Farquhar and Surry (1994) suggest that performing an adoption analysis of the environment where change could take place should include examining what the social system is like, so that leaders can check for congruence between the innovation and the social system.

If the features of the innovation should be congruent to the people in the social system, then it is easy to assume that any resistance or reluctance to adopt can be explained by the time it takes an individual to make an innovation decision and by incongruencies between the innovation and the people in the social system. Lightener and Bernander (2010) explored the kinds of resistance they experienced in their faculty development efforts. These included resistance to new methods of teaching based on faculty's perceptions of what good students should be, the perception that student learning outcomes put unwarranted limitations on academic freedom, resistance to administrative mandates about assessment, putting in more work to change entrenched teaching methods, and uncertainty about what kinds of learning activities would achieve the desired learning outcomes. Cuban (1990) explored faculty resistance, and found that a lecture-based teaching culture, lack of follow up to professional development sessions,

lack of rewards for teaching development, class size, and faculty teaching beliefs were the most pervasive sources of change resistance among faculty.

These forms of resistance among faculty to development and change present challenges to faculty developers to tailor innovations to the specific needs of faculty, and to maintain patience with faculty members that in time, most, if not all, will become open to new ideas.

Curriculum Change

Curriculum development approaches outline what should be done in a curriculum project. The model developed by Wolf (2007) approaches curriculum change in three stages. The first stage, the visioning phase, includes examining the current curriculum by collecting data from stakeholders, defining the objectives of the curriculum in terms of the competencies of the ideal graduate, and finishes by identifying the knowledge base and optimal educational experiences that will result in those outcomes for graduates. The second phase, curriculum development, proceeds as courses are developed by matching content with current and future courses that are needed. The third phase, alignment, involves ensuring a link between the program's goals and the course outcomes as well as the program outcomes. As the program is implemented, adequate resources should be made available. This approach cycles back to stage one as assessment data informs the developers about the quality of the new program.

Curriculum projects occur in many different contexts. Hodge et al. (2011) described how they revised their entire university core curriculum to better engage students. Brumm et al. (2006) realigned their department's programs by first collecting

data from employers and then matching that data with accreditation standards for their field. Bliss (2007) approached a graduate program redesign in a similar way, by looking at the needs of the employment market. Buchanan et al. (1994) defined their departmental outcomes by using data from alumni and employers. Collins (2008) explained the benefits to students and the department of changing just one class to better meet the needs of students. Curriculum change in many contexts and at multiple levels of application can be accomplished Wolf's (2007) model to structure the effort.

Curriculum change efforts have been described extensively from a prescriptive approach (Wolf, 2007), describing what should be done to accomplish curriculum redesign, and from a descriptive approach (Brumm, Hanneman & Mickelson, 2006; Bliss, 2007; Collins, 2008; Buchanan et al., 1994), reporting what had been done to change curricula and courses. Because faculty developers attempt to affect change through their development efforts, it is critical to examine the experiences of faculty in response to those efforts to fill in a gap in understanding curriculum change efforts.

Adding the perspective of the faculty will give developers a more complete understanding of what approach should be selected, how that approach should be implemented and how faculty perceive the curriculum review as it is occurring. The central concern of this study was to compare the experiences of five faculty members that have participated in recent curriculum development efforts by a faculty developer. The purpose of this comparison is to explore differences in faculty responses to change across adopter categories as outlined by Rogers (2003).

Methods

This qualitative study explored the experiences of faculty who experienced the process of curriculum redesign. Case study methodology allowed me to explore this phenomenon in depth using multiple sources of data over an extended period of time while the case was occurring (Yin, 2009).

Curriculum development projects are a means of maintaining relevant offerings for students and serve the purpose of updating course content and serving the needs of employers who hire a department's graduates, as well as the needs of assessment and accreditation entities to whom the university is beholden. Some departments perform curriculum review on a regular basis, while others allow their curriculum to drift and develop based on faculty hiring and retiring. The department in this study had not systematically reviewed their curriculum in more than 20 years. One of the recommendations of a recent external review was that the department review their curriculum.

This department reached out to the faculty developers working in the teaching support office on campus for assistance. Following Wolf (2007), the faculty began by collecting data and using that data to envision the attributes of the ideal graduate in the year 2015, one of the first years that graduates of the new curriculum would come from this department (Jarvis et al., 2012). Using this data, a faculty committee distilled twelve student learning outcomes from the data that was collected and began constructing courses and experiences using those student learning outcomes that would produce the desired attributes in their graduates. Finally, after the curriculum was

finalized, the committee discussed course and program level assessments that could ensure that their vision of a skills-based, student-oriented curriculum would be adequately implemented.

Data for this study was collected using observations, fieldnotes and interviews. Observations were conducted during the time that I had an office in this department, during the year that I provided support for the project. Observational data also included the minutes I was responsible for taking during the meetings. Fieldnotes recorded my thoughts about the observations and meetings. To ensure rigor, I maintained a reflexive journal throughout the data collection process. After the department-level committee work was completed and the proposal had been passed on to the university for approval, I selected members of the committee to interview for the study. I developed a protocol based on the purpose of the study, to explore the experiences of change related to curriculum review projects. I developed the protocol using Rogers (2003) work on change theory as a guide.

Interviewees were purposively sampled to achieve maximum variation (Patton, 2002). This strategy was selected with the goal of representing the spectrum of faculty experience throughout this process, matching the spectrum of responses outlined by Rogers (2003) known as adopter categories. I selected five interviewees to represent the experiences of faculty in the different adopter categories. The interviewees had served on the curriculum review committee in some capacity throughout the life of the review project. Each interview lasted between 45 minutes and one hour. To ensure confidentiality, each participant was assigned a two-digit random number identifier.

Each quote provided by an interviewee is first identified with this two-digit code, then the unit number is identified after the colon. For example, the tenth unit of participant 20's interview would be coded 20:10.

I performed a content analysis on the five interviews. I used the generalizations listed above (Table 1) as a guide for data analysis. The goal of the data analysis was to extend the application of Rogers (2003) theory to the realm of curriculum revision. Patton (2002) describes this process, which he calls analytic induction, as useful for reexamining phenomena in light of a widely accepted theory such as adopter categories (Rogers, 2003). Analytic induction allowed me to analyze the interview data according to the theoretical framework set up by Rogers (2003). An audit trail (Merriam, 2009) was established by taking reflections and observations about the data from my methodological journal and putting those into peer debriefing memos (Appendix D). This case-based analysis begins with a theory and progresses to a case-by-case analysis for confirmation or disconfirmation of the theory.

Results

The case studies presented below are classified in four of the five adopter categories outlined by Rogers (2003) including one non-adopter. Their stories emphasize previous experience, how they were involved with the project, and their attitudes toward change. These five cases also highlight how they have been implementing or considering implementing some of the innovations presented throughout the process as well as where the person is presently working in relationship to the innovation.

Innovator

The Innovator had been praised by the outside review panel for being ahead in seeing the applications of the field to newer areas outside of traditional agricultural applications. The department had sought to hire the Innovator because of this. In reference to the professional society's newsletter, the Innovator described how the society's president was pushing for new applications of the field outside of traditional agriculture.

The Innovator had attended teaching seminars presented by the campus center for teaching and learning and had also been to a multi-day off-campus conference on improving teaching and course design. The Innovator described the approach taken in class that "I've stopped lecturing and gotten out samples…" (57:50) having students examine them, make inferences, and discuss those inferences with their peers. "I was pretty much there already" (57:39) with the advances in teaching that were discussed in committee meetings. The Innovator already had begun implementing active learning and reflective course design based on "what students should get in the end" (57:29), but balked a bit at using learning outcomes to drive course design. The Innovator commented that the outcomes were "unwieldy" (57:30), but decided upon reflection that they were useful and helpful in this approach.

When asked to describe the overall attitude toward change in the department, the Innovator focused on the individual. "Open, I think everybody's open" (57:13). The Innovator's responses mostly focused on the self and on one's individual response to each circumstance of change. One innovation the Innovator was introduced to in this

process was service learning, which the Innovator immediately began to integrate into existing courses and into ones being developed for the new curriculum. The Innovator expressed that implementation of this innovation would necessarily need to be put off another semester because the course where it was to be implemented had not attained the number of students needed to continue the class for the current semester. However, the Innovator recognized the possibilities for implementation, "that service doesn't have to be a big thing, it can be just a small portion of something you're doing" (57:47).

The Innovator in this social system became involved in the project after the retreat. During this phase, the Innovator described feeling disconnected and unaware of where the project was going, "I missed a chunk, not being on the committee from the beginning, and I felt that I was swimming without a buoy or life jacket" (57:36). The Innovator's laptop computer was open at almost every meeting, the only committee member who made this a consistent practice. In committee meetings, the Innovator did not always have a lot to say, and needed to be drawn out when this person's input was needed. The Innovator explained that "You can lose your enthusiasm and momentum. Some will talk louder than others, and your ideas can be flattened" (57:15). Despite these thoughts, the Innovator produced syllabi which were right on target with what the review process aimed at achieving.

The Innovator commented repeatedly that the curriculum revision should have gone further, and that the curriculum was still traditional in its approach to the content. The Innovator ascribes this traditionalism to the "faculty who have been here 40 years" (57:7) who influenced the work of the committee. The Innovator also developed depth

in thinking about creating elective courses and having a new mental framework for approaching course design, and hopes that "it has made an impression about how to think about things" (57:32).

The Innovator's greatest concern at this point was the "fear…that it will be the same old same old" (57:41), "that things won't go ahead…with the experiential learning, to get students to interact with the concepts and with hands-on" (57:44). Currently, this faculty member is preparing to teach a course in the old curriculum that includes service learning .

Early Adopter

The Early Adopter in this social system was involved with this project from the beginning. This faculty member says, "I was always up for this" (93:44) and attended almost all of the committee meetings. The Early Adopter reported being on a journey even before this project began, "I've been in a process of self study on this" (93:10). This faculty member,

> Had the opportunity to go to a STEM (science, technology, engineering and math) teaching conference on course design. It sealed it even more for me at an early, critical time in the process for me, and has been useful for us as a whole. (93:42)

The Early Adopter had shared the knowledge gained from this experience with the committee chair, and "sharing that with him has helped him provide even stronger leadership" (93:43).

This faculty member repeatedly noted the importance of getting outside support and help. The Early Adopter noted that it was critically important to the department to have the outside input from the Delphi study, to have to continued support from the campus center for teaching and learning, and that future efforts to draw in expertise from outside the department were necessary and important. This faculty member explained the importance of this, "We don't have training in learning theory, people just usually do it the way they have seen it done. Then you go 20 years, and you haven't changed" (93:49-50). Considering this lack of initial training, the Early Adopter noted the potential need to offer training for newer faculty members and for continuing education for faculty who have been in the department for a time. This faculty member offered leadership to that effort, "There probably needs to be a faculty member driving that, and I wouldn't mind being that person" (93:46).

This faculty member emphasizes the need to "always be on the lookout" (93:66) for a better way of reaching students. This faculty member gave extensive examples of using innovative techniques to help students "relate and make a connection" (93:15). This professor is making use of peer discussion, reflection, and technology integrated with lecture and other alternative assessments to help students learn. As the Early Adopter describes this, "What I do is more molding" (93:11). The move toward "molding" is to move "away from just dumping it out there" (93:12), with extensive lecturing, hoping students will absorb the information and hold on to it for future assessments and classes.

The Early Adopter is thinking ahead toward the assessment of the new curriculum. This professor would like to see "students assess themselves" (93:53), for the faculty to examine what they want students to know "five years down the road" (93:58), and determine whether their approach is the best way to have students arrive at that goal. Because of this professor's obvious enthusiasm, the committee chair was continually using the Early Adopter as an example to the committee and to the whole faculty as a good example to follow. The Early Adopter was circumspect about this and reflected to me later a desire for the committee chair not to recommend him so strongly as an example.

When reflecting on the process, the Early adopter wished that more faculty members had fully committed to the process instead of "[going] along with getting it done" (93:18). He described how a faculty member who is "focusing, committing time to do some extra self-study" (93:19) could be in a good position to bring something valuable to the process.

The Early Adopter's current interests in this program, other than seeing the approvals and beginning implementation at the program level, is to "fully flesh out the learning outcomes with learning activities, and define the objectives of those activities" (93:37). This professor suggests that the improvement process is "never done. If we say it's done, then we're not doing what we need to do" (93:64).

Early Majority

As a person who volunteered himself as "a person who doesn't embrace change right away" (75:19), the Early Majority sees this as a "big change for our department"

(75:90) and talked about this process as an opportunity to "change the trajectory of the department" (75:71).

This faculty member began involvement with the curriculum review project as preparations were being made for the retreat. During this time, committee members had worked with the Delphi information and had distilled the twelve student learning outcomes from that information. The Early Majority observed that the people who worked with the Delphi material at that stage had a great deal of influence on the project because of the ways that they were able to shape the project.

After the retreat, the Early Majority emphasized a lack of preparation because "I didn't appreciate how dramatic this was going to be" (75:30). the Early Majority was deeply committed to the process after adopting this innovation. The Early Majority noted that the Delphi data was a limitation on the curriculum review because there was so much information that it caused this person to "zone out" (75:24), however, this faculty member used nearly twice as many learning outcomes on the syllabus developed for the curriculum than anyone else, and was reluctant to pare the list down because "I really wanted to make sure that all of those objectives were covered" (75:83) and was the only interviewee to ask about how fully the Delphi identified outcomes were addressed by the curriculum in its final form.

Active learning and engaging students in the learning process was being implemented by the Early Majority because of the project. This faculty member applied for a teaching grant to develop an active learning class based on the principles discussed throughout the project. "I wouldn't have done it had it not been for this process"

(75:64). This professor mentioned numerous times the benefits to students of taking this approach.

Though great strides had been made, the Early Majority reflected that there was still a long way to go and that the curriculum had not gone far enough to ensure that there would be the kind of learning activities that the students "clamor for" (75:54) and that are effective for student learning. This professor was also very concerned about students being prepared to handle questions about topics related to this field that appear in the newsmedia, "students need to be able to have some kind of knowledge about it to be able to say whether their claim has any merit or whether it doesn't" (75:85).

The Early Majority continually emphasized the environment of reduced budgets, retirements and research pressures as being a challenge yet to be overcome. This dominated talk about the future and implementation of the new curriculum, as the Early Majority raised the issue of "hav[ing] enough people to teach all the classes" (75:75).

The Early Majority explained how his perceptions of the project changed over time:

> I went through different stages. At first, it was ignoring, then I didn't think we'd come to consensus about things. I thought it would be a mess, that we would not change anything. Then, I started thinking that it wouldn't get done. Then, I began to be afraid that I didn't think that it would look like agriculture anymore. I thought it might become something no one wanted and wouldn't resemble our mission anymore. Now I sense dread creeping back in as we have to actually do this. (75:91-99)

Even with this mixed assessment, and the Early Majority reflected that it will be positive for students and a lot of work for faculty.

Late Majority

The Late Majority's involvement with the curriculum project began at the retreat, then during the development phases this faculty member's meeting attendance became quite regular. At the retreat, the Late Majority "felt in the process very uncertain" (59:40). This was explained by saying that the department had been down the curriculum change road a few times with no results, so there was no expectation that these efforts would be any different.

As the committee meetings progressed, Late Majority appreciated the help of the campus center for teaching and learning because "I just was not in tune at the beginning. That's one reason why it was good that there were so many meetings, and the frequency of everyone getting together was important for bringing us along" (59:43). The Late Majority reflected that it was during these meetings that questions were asked, answers were provided, input was requested, and the committee could "digest things" (59:45) then move on to the next step in the process. The expertise and step-by-step procedure presented by the faculty developer from campus center for teaching and learning were "necessary" (59:37) and helped the Late Majority have "a change of heart" (59:36) to "accept that this change will make things better" (59:34). The Late Majority emphasized the importance of all of the syllabi looking similar, getting unity across the course material, and getting just the right amount of replication across the whole program.

Late Majority co-teaches a class with another committee member who initiated some active learning strategies in the class they teach. Late Majority reported, "I liked it when we did it" (59:73). This experience caused Late Majority to see a benefit for students in those activities. This faculty member also said that it would be helpful for other professors to see the comparative benefits of a different teaching style.

This professor thought this was a "huge undertaking" (59:32) for the department. When asked about the overall attitude of the department toward change in general, he replied, "We're pretty fixed" (59:53). Late Majority commented about how quickly the literature changes within the specializations, so much in fact that "I can't even keep up with" it (59:51). This faculty member also talked about something he had heard from many of his co-workers, that what they are doing with their curriculum is working, and they have been doing it for a long time because they were happy with it. For these reasons, Late Majority and other faculty were willing to step aside and allow younger faculty members to "take this curriculum to its next steps" (59:67). Late Majority turned in the final syllabus for the curriculum proposal, several weeks after others had completed theirs. Late Majority perceived that the major outcome of the process was getting a new curriculum and was concerned primarily about assessment problems that were on upcoming committee meeting agendas.

Non-Adopter

This professor chose not to participate to any great extent in the process although this faculty member was specifically sought out because of the need for more people on the committee with experience working with undergraduates. This professor teaches

courses to students who are primarily not majors in this department, but who need a course in this department as an elective. This professor is the largest generator of student credit hours in the department and teaches hundreds of students every semester. When Non-Adopter became more familiar with the project and its goals, participation stopped abruptly. Because this faculty member had recently been upset about the way the department had positioned itself in regards to a benchmarking study that was performed as part of the curriculum project, other faculty members perceived that this was the reason for the stop. When asked about this incident, the Non-Adopter explained that he "wanted to avoid telling others what do to. If I don't want to be told what to teach, I should not participate in telling others what to teach" (6:33).

Non-Adopter went on to explain that when some curriculum revision projects occur, faith in the teacher to determine content and to assess as that teacher sees fit are lost. After discussing this with the department head, the classes the Non-Adopter was responsible for were determined to be outside the scope of the curriculum project. "I avoided catastrophe" (6:36) by having those classes labeled this way.

This professor explained that he is a "complete capitalist" (6:39) and wanted to keep students happy who need courses in the department. Non-Adopter reflected that in some ways students do not want the kinds of attention required by increased emphasis on alternative forms of assessment. There was also a great concern here that those who would be called upon to teach undergraduates in the new curriculum would not understand the needs of undergraduates, particularly the ones that are not majors in the department "because those folks are unfamiliar with the average student, who is not [a

practitioner in this field], who is not a 'believer'" (6:34). This faculty member was also critical of the department for narrowing its focus, explaining how this field became attractive in the Non-Adopter's experience, but it was a broad understanding of how this field influenced all history, geography and politics. Non-Adopter pursued a Ph.D. with the goal of "controlling my own destiny" (6:32), and because his assumptions and perceptions about project did not agree with that value, so this faculty member decided to opt out.

This person could not have been classified as a laggard because of the quick time from information to decision. This faculty member consciously chose not to adopt because of the decidedly un-fatalistic framework for making his own life choices. Further, Non-Adopter also demonstrated interconnectedness with social networks, as he was sought out by other committee members for help in the development phase because of his extensive expertise with undergraduates.

Here, as with all of the cases, the faculty member became aware of the project, found out more about how the process worked, and made a decision about adoption. These cases illustrate how differently people in a change project become involved with such projects, have their information needs met in different ways, and how their attitudes toward change influence their implementation approaches.

Discussion

These faculty members differed in their adoption of the curriculum change process, teaching in new ways, and the change to a new curriculum. The generalizations of adopter categories described by Rogers (2003) will form the basis for discussing those

differences. These generalizations are classified into socioeconomic, personality and communication.

Socioeconomic characteristics play a part in differentiating adopter categories (Table 1) (Rogers, 2003). In this sample, the only socioeconomic characteristic of note was occupational prestige. The Innovator in the sample specializes in an area that is cutting edge in the field, and it is not yet widely accepted among the faculty and others in the field as a viable use of resources. This specialization is not specifically related to agriculture in a direct way, and those whose focus is agriculture have not yet given this specialization room to flourish in the field. Since there is no difference between age between adopter categories, no effort was made to note the age of the respondents. Additionally, since the respondents were equal in formal education and literacy rate, each having obtained a Ph.D. in a science-related field, these things were not considered. I had no opportunity to observe any differences between respondents in terms of their social status or the size of their research programs.

One of the generalizations about socioeconomics is that of the size of the unit. Generally, the larger the size of the person's operation, the faster they adopt because they have a greater means of spreading risk over their entire operation. In this case, the Innovator taught fewer students and the Non-Adopter taught the most students. For this study, the size of the unit was inversely related to adoption. This could mean that teaching and curriculum innovations are easier to implement on a smaller scale, and were adopted by those with smaller numbers of students to teach. Future research should focus on this deviation from Rogers's (2003) generalizations found in this study.

Personality differences exist between adopter categories (Table 1) (Rogers, 2003). Among these characteristics, intelligence and attitude toward science were not considered, as this study was conducted in an academic setting where all respondents were Ph.D.s in science-related fields.

There were differences between respondents with regard to their attitude toward change. The Innovator reminded me that the curriculum project was supposed to get the department ahead in to the future and wanted to go further with the changes. The Innovator also emphasized fear that nothing would change in the teaching style of most of the faculty. Later adopters described how they perceived the magnitude of the project to be huge, and their fears were that the new program would not be related to agriculture as strongly as it had been in the past. The Innovator described people as being generally open to change, while the later adopters described the department as being closed and fixed when it came to change. These descriptions reflected more about their own attitude toward change than the actual level of openness to change within the department. Sometimes this openness to change can override any concerns about the appropriateness of the attributes of the innovation (Spotts, 1999). The attitude of openness of the earlier adopters opened the social system to the innovation, and allowed the innovative space within the department for the development of a new curriculum. Since the faculty members themselves were able to influence the development, the attributes of the innovation mirror the values of those in the department closely (Rogers 2003).

Earlier adopters were able to cope with risk and the uncertainties associated with thinking about a curriculum that had not yet been implemented. They reflected a wait and see attitude. The Early Majority questioned the need for the project considering the current backdrop of budget problems and the related retirements. A high level of anxiety reflected in the number of unanswered questions in that interview. The Late Majority respondent elaborated about watching his co-teacher implement some active learning strategies. Being able to watch someone else implement that successfully, helped him to see the benefits. This also confirms Rogers' (2003) observation that innovations that are more trialable and observable are adopted more easily.

More innovative respondents were also less fatalistic than their later adopting counterparts. The Innovator and the Early Adopter both wanted to be in control of their own agendas and to be knowledgeable about the project. Since the Innovator was not on the committee from the beginning, this hindered the Innovator's participation in the project. The Late Majority discussed the benefits of someone else stepping the department through the process and needing outside direction throughout the process, allowing others to be in control of the agenda and the direction that was taken.

The later adopters reflected a more dogmatic attitude than the earlier adopters. The non-adopter valued his own academic freedom, and this was his main objection to participation in the project. Lightener and Bernander (2010) also found that academic freedom was a source of resistance from faculty they had worked with in development projects. On the other hand, the earlier adopters were seeking new ideas and ways of doing things through attending seminars and retreats to improve their courses.

Earlier adopters in this project demonstrated greater empathy and imagination than did later adopters. The Innovator was able to immediately conceptualize how the service learning component could be implemented in current classes. However, the Late Majority emphasized that he perceived the project to be about uniformity and having everyone's syllabi looking similar. These differences indicate a difference in the ability to conceive various elements of the project in an implementable fashion.

For all respondents, the interest was to implement approaches most effectively reach students, but the difference between the adopters was the focus of this goal. The Innovator spoke about how the project had provided a shift in mental framework in conceiving course planning, and the Early Adopter discussed how his approach was effective for accomplishing more than one goal, such as reflection and taking roll. The Early Majority said that his class was a way to get students exposure to things that would make them successful, and the Late Majority reflected that the approaches to teaching and to assessing they were using may not be optimal. This openness to active learning confirms Brumm et al. (2006) who found that employers considered lecture-based approaches in the classroom to be the least effective means to achieving career readiness. This also goes against Cuban (1990) who found that faculty resisted change based on an entrenched lecture based culture; however, there is the possibility that others in the department would resist the change based on this cultural bias. The emphasis on rationality extended to the non-adopter who considered his own courses to be the best way to reach his goal of pleasing students and the department. Thus, rationality could be

conceived as a means to resist or accept change in this setting, based on a difference in the goals of the faculty member.

Respondents also differed in terms of aspirations, though this difference was not so much about achieving higher social strata (Rogers, 2003), but about differences in the focus of the project's effects. Earlier adopters expressed a desire to get the project done at a high level. The Early Adopter even questioned whether the approach was yielding the best possible results, questioning whether he was doing things well enough. Lightener and Bernander (2010) found that uncertainty as to what kinds of learning activities yielded the best results was a form of resistance that they had observed in the faculty they had worked with. For this Early Adopter, this uncertainty was not resistance, but the uncertainty drove his search for more effective means of reaching students. The Early Majority was not so concerned with the best ways of meeting the needs of students, but how prepared the students would be for meeting the needs of society. He emphasized the need for current knowledge that addresses the questions people have about this field and other technologies that make the news frequently. Late Majority's aspiration was to have unity across the curriculum, an important goal for him as he moved through the project. All respondents had high aspirations, but a different focus for those aspirations.

The personality differences were shown most dramatically in their attitude toward change, fatalism and dogmatism. There were no notable differences in their rationality as all of them expressed interest in reaching students in the most efficient way

that they saw fit. There were differences in their aspirations, but the difference was found in the focus of those aspirations for the project.

Communication differences across adopter categories (Table 1) (Rogers, 2003) were also found. I had no opportunity to observe several things about their personal communication habits including the extent of their social participation, how large their personal networks were as well as how interconnected they were within those networks, and the extent of their exposure to interpersonal communication channels. However, there were differences between the adopter categories related to how they sought information about innovations, and how much knowledge they had about the innovations. There were also differences in contact with peers outside their social system, contact with change agents, and exposure to mass media communication. They were also different in the amount of opinion leadership they showed.

Earlier adopters sought information about the innovations in the curriculum review process in different ways than later adopters. The earlier adopters sought information about curriculum design and different methods of teaching from conferences and seminars outside the department. The later adopters did not mention having any exposure to this kind of thing except by contact through the project itself. The later adopters' knowledge of the project came from others within their own social system. For example, Late Majority became aware of alternative teaching strategies because his co-teacher tried out some of the strategies in a class. Earlier adopters showed more know-how knowledge in the examples they gave of their own implementation and expressed that it was important to build up a library of activities from which to choose.

The earlier adopters also detailed their strategies as they had been implementing active learning, while the Late Majority described how others had implemented the learning activities. Lightener and Bernander (2010) listed the idea that learning activities took more work on the part of faculty than lecturing. The stories of the earlier adopters certainly reflect this, and earlier adopters might not consider the work load to be prohibitive because of their values related to change and effective teaching.

Earlier adopters were more connected outside their own social systems, or more cosmopolite (Rogers, 2003) than later adopters. The Innovator talked about meeting with the outside review panel because they were interested in the applications of the current research and teaching of the Innovator. Both the Innovator and the Early Adopter had attended conferences on curriculum and course design outside the university. The Early Majority reported the perceptions of those within the department with whom he spoke about the project, indicating that he was much more interconnected within the department than outside the department. All respondents except the non-adopter praised the help of the Delphi data collection process, conducted outside the department, and the work of the faculty developer. The non-adopter reflected a skeptical, almost negative attitude toward the faculty developer. This difference in connectedness and openness to outside help and influence differed among the respondents.

Earlier adopters did have more contact with the change agent. Despite being brought on the committee in the middle of the project, the Innovator attended most of the meetings after that point. The Early Adopter was at almost every committee meeting

from the beginning of the project, and has cooperated in other capacities with the faculty developer through the teaching center on campus. The Late Majority was pleased to have so many meetings to have the opportunity to process through some of the pieces of the project. The faculty developer encouraged discussion and conversation about the process and emphasized during meetings that these conversations were critical to the process. Qualters (2009) found success in changing faculty members' teaching philosophies through a structured dialog process, and though a formal dialog process was not implemented in this project, confirms the finding that open discussion of teaching can produce changes in teaching approach and philosophy. The Late Majority was glad to have so many meetings to discuss and think about the project. This need for extended discussion may be another key way that earlier adopters differ from later adopters in terms of their training needs (Zayim, Yildirim & Saka, 2006).

Earlier adopters showed more mass media exposure than did later adopters. The Innovator described a recent article in the society's newsletter that called for more broad applications in the field, and was the only responded to mention mass media in a positive way. The Early Majority mentioned college rankings by a popular magazine in a negative way that communicated suspicion and doubt about the amount of influence those rankings have on choices of high school graduates.

The earlier adopters also showed more opinion leadership than the later adopters. The Early Adopter showed the greatest amount of opinion leadership and wished that more faculty members would have bought in to the process. The committee leader even looked to him as a person who provided information and an example to follow. The

Early Adopter had also been thinking ahead about future needs of the department related to this project and was ready to give leadership to that effort.

The main differences in each of the areas outlined by Rogers (2003) were in personality and communication. Because the sample was so homogeneous in regard to most of the socioeconomic factors, that makes the differences in personality and communication habits that much more salient. Earlier adopters stand out in terms of their lack of dogmatism, their capacity to tolerate risk, their contact with people and ideas outside their social system, their level of knowledge about the innovation, and their degree of opinion leadership.

For change agents and faculty developers working with curriculum projects, an awareness of adopter categories is helpful during the change process. Zayim, et al. (2006) found that those who enter projects at different stages have different training needs. These findings demonstrate that later adopters prefer to be carefully stepped through the process with outside direction, while earlier adopters prefer to chart their own course. Earlier adopters should also be identified and brought in to change projects early because of their increased opinion leadership and because they expressed preference for knowing where they were going with the project. Later adopters need more assistance in conceptualizing implementation possibilities. All of the respondents said that they appreciated the teamwork that occurred in the committee meetings, and using teams to identify viable applications of innovations such as service learning should help later adopters to better imagine the possibilities for these innovations. Earlier adopters were glad to share their experiences with implementing new ideas in their

classrooms, and later adopters benefitted from extended discussions about teaching. Faculty developers need to encourage these conversations as a means of allowing earlier adopters to show opinion leadership and as a means of increasing knowledge of innovations as they diffuse through the social system. Another means of increasing knowledge of innovations is by increasing the amount of media exposure the group has by purposefully selecting media publications to present to the group. These findings also suggest that faculty developers should address concerns like academic freedom openly with the group. The Non-adopter pulled out of the project because of these concerns. Had academic freedom been addressed in a committee meeting, those concerns would have been drawn into the open and addressed directly.

Limitations and Future Research

These cases are representative of the adopter categories, but may not be representative of the department as a whole. This data emerged from the study, and could have been augmented with quantitative data that confirmed my classification of each of the participants into the adopter categories they represent. Additional research in this area should focus on a follow up study during the implementation stages of the project to examine potential differences between the adopter categories relating to how they implement the innovation.

This research should also compare the effects of the change on the system and the degree of actual change from the old curriculum to the new curriculum. Because of the amount of discussion in the process, applying the dialogical process outlined by Qualters (2009) could have an influence on the depth of change and the number of

faculty members who seek change as a result of the curriculum change process. Sunal et. al (2001) identified dissatisfaction as a precursor to change, and that was not found in this study. Future research could examine dissatisfaction as a means of exploring the readiness of departments for this kind of process. Additionally, researchers could also explore the mixed responses of the sample in the areas of rationality, to examine what kinds of differences there might be among faculty members in these areas. Tthe potential of an inverse relationship between the number of students taught, or the size of the unit controlled by faculty members, and their willingness to adopt curriculum and teaching innovations should also be explored. Finally, research should investigate the types of questions and concerns faculty members left unanswered (Hall & Hord, 1987).

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study addressed a critical gap in the curriculum development literature. This study explored the experiences of faculty in a department undergoing curriculum change. Specifically, it focused on the experience of the process, the experience of leadership and the experience of change. There were three knowledge areas important for conceptualizing this study, including leadership, change and curriculum development frameworks. One leadership model known as transformational leadership (Burns, 1978; Bass & Avolio, 1994) has been linked to innovativeness in organizations (Yung, Chow & Wu, 2003; Den Hartog et al., 1996). Transformational leadership includes practices related to intellectual stimulation of followers, individual consideration of each follower, idealized influence upon followers, and inspirational motivation of followers (Bass & Avolio, 1994). Change in organizations occurs through diffusion of innovations through communication channels (Rogers, 2003) and educators proceed through a predictable set of change-related issues as they implement the change (Hall & Hord, 1987). Curriculum change projects generally begin with some sort of visioning process in which educators define the ideal outcomes for their graduates (Wolf, 2007), then proceed to match educational content and experiences with the appropriate course level. After this, the development of pedagogical techniques and knowledge that is applied in the classroom setting becomes the focus of the project (Wolf, 2007).

Summary and Conclusions for Article 1

The first article explored the faculty experience of a curriculum change project. Angelo and Cross (1993) provide multiple methods of designing and assessing active learning strategies to impact student learning, supporting Kolb's (1984) experiential learning model. Some practices such as senior capstone courses are known as high impact educational practices and are known to be a key to impacting student learning on a deep level (Kuh, 2008). Brumm et al. (2006) found that lecture was the least likely means of impacting student learning. When faculty members undergo training and development in student-centered teaching strategies, student evaluations of teaching effectiveness go up (Gibbs & Coffey, 2004); however, transitioning to different methods of teaching requires faculty members to have adequate time to reflect and talk to each other about changes in teaching strategies (Qualters, 2009).

These new teaching strategies are innovations in some faculty systems and should be expected to diffuse slowly through those systems (Rogers, 2003). Anyone supporting this kind of change should expect faculty to proceed through a specific set of questions related to the self, the task of implementation and the impact made on students and other faculty members (Hall & Hord, 1987). Dobbs (2000) found that combining verbal explanations with experience of the new strategies was an effective change strategy, and faculty members who adopt at different times need different approaches and content in their training (Zayim et al., 2006). Some faculty who resist change (Lightener & Bernander, 2010) might be enticed to adopt the innovation of new teaching methods and new curriculum through incentives (Surry & Land, 2000).

The innovativeness of organizations can be influenced by the transformational leadership practices (Burns, 1978; Bass & Avolio, 1994) of those taking charge of the change (Jung & Sosik, 2002). Transformational change leaders should direct their followers toward the vision of the organization, not toward themselves (Higgs & Rowland, 2011). Those leaders should also provide the vision and the spark for the change project (Kotter, 1996).

This study explored the faculty experience of curriculum change to address a gap in the literature between prescriptive approaches to curriculum change (Wolf, 2007; Diamond, 2008) and descriptive approaches to reporting changes that had been made (Collins, 2008; Brumm et al., 2006).

Purpose and Research Question for Article 1

The purpose of the first article was to address the first research question: How was the curriculum change process experienced by faculty in this department?

Summary of Methods for Article 1

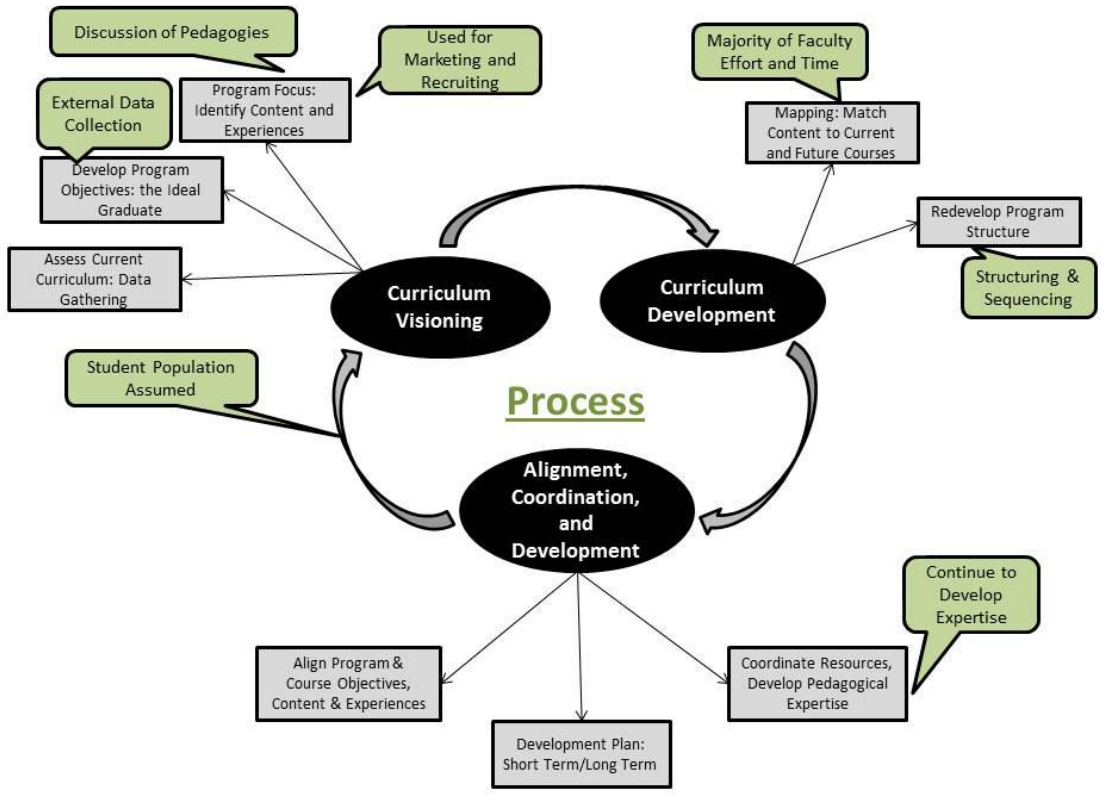
After fourteen faculty members were interviewed, their interviews were transcribed, coded and analyzed using open coding. The themes that emerged were discussed with various experts in the fields of curriculum change through peer debriefing memos. Triangulation was achieved by using observations, departmental documents and minutes recorded during committee meetings.

Conclusions and Recommendations for Article 1

Many conclusions can be drawn from this first study. This case illustrates that a department without a great deal of experience with curriculum projects can produce a

new data-driven curriculum, supported by outside entities, and that produces change toward student-oriented teaching strategies. It can be concluded that the process used by the department, supported by a faculty developer from the teaching and learning office was helpful to faculty members who had past experience with failed projects as faculty members expressed the importance of that element of the project. The support provided by the campus center for teaching and learning office was critical to the success of this project. Based on the amount of discussion and reflection during interviews, it can also be concluded that faculty members were more familiar with a broad range of teaching strategies. Faculty members were concerned about how the change would affect students in the department. The data demonstrated that the committee was able to think through how these changes might affect students and what kinds of students they would need to attract to their department. Interviews provided committee members the opportunity to think about their own response to change and how the leadership affected the project. Based on faculty reflections in their interviews, they perceived that the project's leadership was effective. This case shows that the department has deep knowledge of the curriculum change process after completing the process. This has allowed them to better understand their own department.

Figure 2
Wolf model with recommendations from article 1



Note. Recommendations associated with the research findings on the development process include collecting external data, discussing pedagogies, using developments as marketing and recruiting tools to attract a quality student population, communicating that the majority of faculty effort and time will be spend in the second phase mapping courses and developing the curriculum structure and sequence, and continuing to develop pedagogical expertise. Adapted from "A model for facilitating curriculum development in higher education: A faculty-driven, data-informed, and educational developer-supported approach" by P. Wolf, 2007, *New Directions for Teaching and Learning 112*, p. 17. Copyright 2007 by Peter Wolf.

The most salient conclusions in this case revolve around the support system, the leadership and the discussion forum provided by the committee meetings. Faculty attributed the success of this project to the involvement of the support staff and the faculty developer from the teaching and learning office. Leaders secured broad support

for the program and engaged the creativity of faculty by delegating development tasks to them. Delegation spread the responsibility for the project's success and encouraged momentum as the project progressed. Interviewees expressed that the discussions among faculty about teaching strategies was critical and may become the most important feature in promoting curricular change.

Recommendations based on this data are aimed at faculty developers and other curriculum practitioners at the departmental level (Figure 2). The department in this study brought in outside help to collect data from stakeholders to assess their current curriculum. If a department pursuing curriculum change lacks the skill to collect such data, then they should call in outside support either from another department or from the teaching and learning office. This study showed that faculty members on the curriculum development committee enjoyed and needed extended discussion of pedagogies to provide students with the kinds of educational experiences they identified as beneficial. Therefore, faculty developers and curriculum specialists should plan for and encourage extended discussion about these topics. Faculty in this department remained concerned about the student population, which the Wolf (2007) model assumes, but could dwindle in as little as two years for this department. Since improvements to the program are being made, those should be used to develop new marketing and recruiting materials to promote student interest and program enrollment. Because a majority of the faculty committee's attention was on the development phase, faculty developers and curriculum specialists should plan for extended focus on this phase of the project. This effort should focus on development of courses and on structuring the overall program to meet the

program's goals. Finally, faculty in this department were aware that this was not the end of the road for the project, and recognized the need for continued training and development to meet the goals of the new curriculum. Faculty developers and curriculum specialists need to plan for extended attention to pedagogical development during the implementation stages of the project.

Summary and Conclusions for Article 2

The second article focused in on the leadership of the project. Transformational leadership was first conceptualized by Burns (1978) and further developed by Bass and Avolio (1994). Transformational leadership is based on four elements. The first element is intellectual stimulation (Bass & Avolio, 1994). Intellectual stimulation includes the leader's own creativity. Creative work forces are linked to creative work environments (Oldham & Cummings, 1996), highlighting the importance of a leader maintaining a creative organizational climate (Ekvall & Ryhammar, 1999). Intellectual stimulation also includes the leader challenging the belief systems of the followers (Bass & Avolio, 1994), which needs to be pushed just enough to break negative patterns, but not so much to alienate people (Higgs & Rowland, 2011; Bisel & Barge, 2011). Transformational leaders also provide intellectual stimulation by supporting followers as they deal with innovations (Bass & Avolio, 1994) and change in the present moment (Higgs & Rowland, 2011). The second element of transformational leadership is individual consideration (Bass & Avolio, 1994). Support for new ideas is critical in sustaining creative work environments (Ekvall, 1996). Transformational leaders will also delegate tasks to followers to guide the energy of their followers (Higgs &

Rowland, 2011). The third element of transformational leadership is idealized influence (Bass & Avolio, 1994). Transformational leaders are trusted, respected and set a tone by modeling the desired behavior. Farquhar and Surry (1994) suggest that an assessment of the need for change be performed, which can help the leader present a clear need for the change and a clear vision for that change. The final component of transformational leadership is inspirational motivation (Bass & Avolio, 1994). The primary element of this is shared vision, and if the followers share the values of the leader, they will adopt the leader's vision more quickly (Jung & Avolio, 2000). Inspirational motivation, if present, can provide incentive for group members to go beyond their normal job expectations as part of the change effort. If trust in the leader is not present, this behavior would need to be incentivized (Posdakoff, MacKenzie, Mooreman & Fetter, 1990). Transformational leaders are able to take their followers beyond where they thought they could go (Bass & Avolio, 1994).

Purpose and Research Question for Article 2

The purpose of the second article was to address the second research question: How did the faculty perceive the effectiveness of the leadership of this curriculum change project?

Summary of Methods for Article 2

Since transformational leadership has been shown to be linked to innovativeness in organizations (Jung, Chow & Wu, 2003; Den Hartog et al., 1996), this theory was applied to the leadership related data. This study explored the transformational leadership dimensions experienced by faculty members as a part of the curriculum

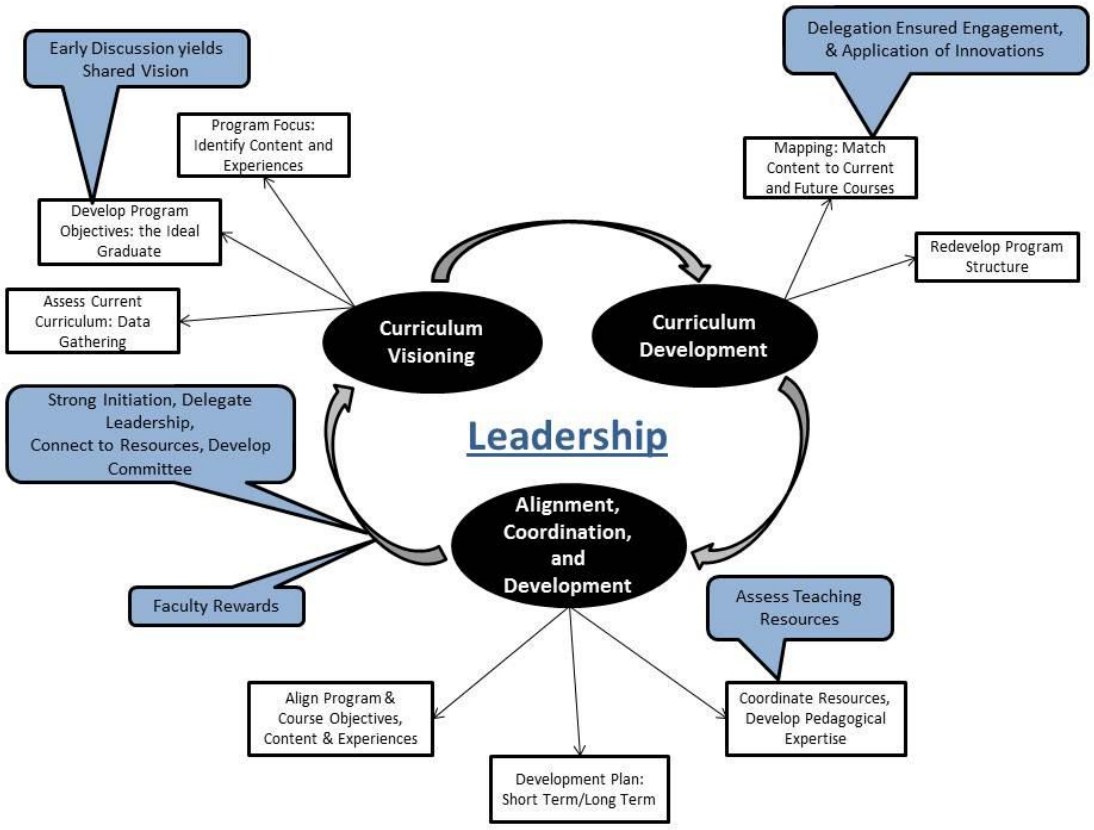
change process. Analytic induction (Patton, 2003) was used as a method of data analysis to explore the ways that faculty members reflected the experience of transformational leadership during the project.

Conclusions and Recommendations for Article 2

This study found that transformational leadership was present in the way faculty members experienced the leadership of the curriculum change process. All four of the component areas of the transformational leadership model were present. It can be concluded that the project leaders demonstrated idealized influence. Faculty noted examples of how the leaders were role models for innovativeness. The committee members praised both leaders for the hard work they do. Faculty members also discussed how their committee participation was outside their job responsibilities and the fact that there was no reward for participating in teaching development, so it can also be concluded that the trust developed between the leaders and the faculty committee was one element in the success of the leadership of the committee.

Faculty experienced inspirational motivation from the leaders of the curriculum change project. Many faculty members commented about the strength of the departmental vision and the department head noted how the faculty members were invested in the department's mission. This sense of shared vision for the whole department helped the group transcend their own personal interests and put their energy into a departmental project. One element of inspirational motivation not present was emotional appeals, though some faculty members did talk about their emotions as the project progressed, this was not of importance to the success of the project.

Figure 3
Wolf model with recommendations from article 2



Note. Recommendations associated with the leadership article include strong initiation by departmental leaders, delegating leadership, connecting to outside resources, developing the committee, developing a shared vision and faculty rewards system early in the process, delegating development tasks to ensure engagement with and application of innovations, and assessing present and future teaching resources to address anxieties about resource issues. Adapted from "A model for facilitating curriculum development in higher education: A faculty-driven, data-informed, and educational developer-supported approach" by P. Wolf, 2007, *New Directions for Teaching and Learning 112*, p. 17. Copyright 2007 by Peter Wolf.

Faculty members experienced intellectual stimulation provided by the project's leaders. The leaders connected the department to the faculty developer who provided structure and accountability that countered the faculty member's beliefs that nothing would happen because of past experiences with curriculum projects. Faculty members

noted that had the leaders not been committed, that the project would not have occurred. It can also be concluded that faculty members were supported in their efforts to wrestle with and fit into this new structure through the discussions, through open forums for asking questions, and through the faculty developer's efforts to continually provide practical help as it was needed.

The final piece of transformational leadership is individual consideration (Bass & Avolio, 1994), included by faculty members as part of their experience (Figure 3). In this case, the support of the leadership and willingness to discuss at length new ideas in committee meetings provided support for faculty members to explore the applications of innovations presented throughout the project. The leaders of this project also tried to engage their followers by including them in the curriculum development process. Delegation of tasks was the key to this approach; each member of the committee was responsible to some piece of the proposal.

Transformational leadership was practiced throughout this curriculum project. The leadership was strong in idealized influence, and faculty reflected trust and respect for the leaders' high standards and innovativeness. The leaders demonstrated inspirational motivation by promoting a shared vision and cultivating trust. Faculty shared the value of having a great department and were able to extend their efforts beyond the limitations of their job descriptions to complete the curriculum redesign. These leaders also provided their faculty committee with individualized consideration by supporting the application of innovations and by delegating development tasks to them.

Several recommendations regarding the leadership of curriculum projects come from this research. Faculty developers need to make department heads aware that strong initiation of the project is critical to beginning such an effort. Faculty members were complimentary of the department head for his strong commitment to this project from the beginning. Additionally, the department head in this study delegated the committee chair position to a capable professor. These two leaders were able to connect the department to outside resources that were critical to the success of the project and to develop a committee of interested and enthusiastic people to help with the project. Faculty developers should plan project timelines with these things in mind, and place them on the timeline before beginning the curriculum visioning process. Because faculty rewards for such involvement were mentioned by several interviewees, department heads should also make allowance for this in the promotion and tenure considerations for their departments.

During the curriculum visioning process, the leaders were able to develop a shared vision among the committee through extended discussion and clarifying the approach and philosophical assumptions. Faculty developers and curriculum specialists should promote this practice, especially if there is a diverse committee who do not share common philosophical assumptions, or do not know where the others stand on those issues. During the alignment phase, departmental leaders should assess the teaching resources they have at the present and forecast those needs. Faculty members remained concerned about teaching resources, and teaching assignments, budgets and faculty morale could hang on decisions made about scarce teaching resources.

Summary and Conclusions for Article 3

The final article explored the experience of curriculum change across adopter categories, as outlined by Rogers (2003). The earliest adopters are known as Innovators, who are followed by Early Adopters, Early Majority, Late Majority and Laggards. People in these adopter categories vary in socioeconomic characteristics such as social status, personality characteristics such as empathy, and communication characteristics such as social participation (Rogers, 2003). Lightener and Bernander (2010) found that faculty resist instructional innovations for many reasons including not knowing which methods are the best. Cuban (1990) explored resistance to instructional innovations and found that faculty resisted change because there was an embedded lecture-based culture and a lack of rewards for teaching development. Innovations must match the culture where they are imported, and they must show a relative advantage over other approaches to be adopted (Rogers, 2003). The purpose of this study was to explore the individual faculty member's experience of change for five faculty members in the department.

Purpose and Research Question for Article 3

The purpose of the third article was to address the third research question: What were the differences in faculty experience of the curriculum change project across adopter categories?

Summary of Methods for Article 3

These faculty members were selected purposively to represent the spectrum of experience (Patton, 2003) within the department based on Roger's adopter categories

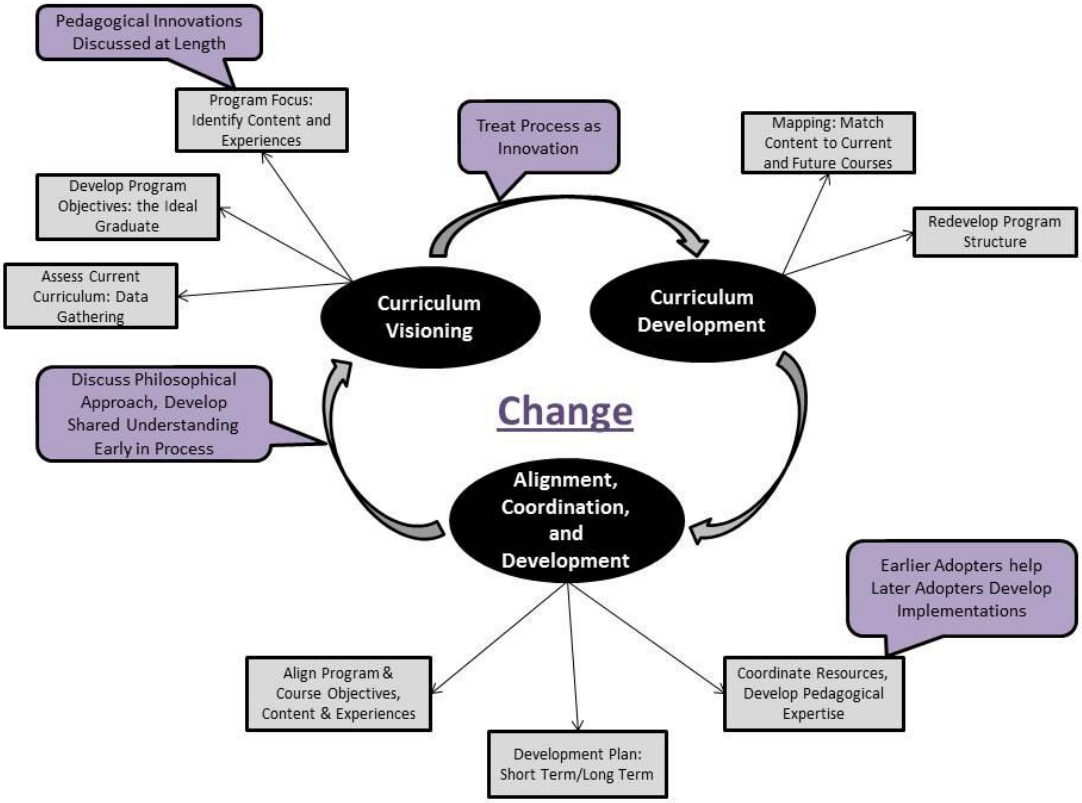
(Rogers, 2003). Individual interviews were analyzed to yield an exploration of the change experience for each of the faculty members.

Conclusions and Recommendations for Article 3

Many conclusions can be drawn from the study of the differences between adopter categories. Faculty members differed in their adoption of the curriculum change process, teaching strategies, and the change to a new curriculum. It can be concluded that socioeconomic characteristics influence adoption rates. One socioeconomic marker is social status, of which occupational prestige is a part. Occupational prestige was lower for the Innovator because the Innovator's specialization is not highly respected in the field. For this study, the size of the unit was inversely related to adoption, as the Innovator had a small number of students taught and the Non-Adopter had the largest number of students taught.

It can also be concluded that personality differences affect the adoption of this innovation bundle. There were differences between respondents with regard to their attitude toward change, as earlier adopters had already adopted parts of the innovation bundle. Earlier adopters were able to cope with uncertainties associated with thinking about a program which has yet to be implemented. More innovative respondents were also less fatalistic than their later adopting counterparts, as the findings demonstrate that later adopters prefer to be carefully stepped through the process with outside direction, while earlier adopters prefer to determine their own directions. The later adopters were more dogmatic than the earlier adopters, as the earlier adopters were continually seeking newer ideas and later adopters had not. Earlier adopters in this project demonstrated greater empathy and imagination than did later adopters, as reflected in the Innovator's immediate apprehension of the application of service learning. It can also be concluded that rationality was of similar levels across adopter categories, as each of the interviewees had effectively reaching students as their goal. However, they varied in their certainty in the methods of reaching students, and earlier adopters were much more certain about the ways that their strategies were reaching students effectively. Respondents also differed in terms of aspirations, though this difference was not directed at achieving a higher social strata (Rogers, 2003), but about differences in the goal of the project, which varied from the earlier adopters' emphasis on a high level of performance to the later adopters' emphasis on the unity of the curriculum.

Figure 4
Wolf model with recommendations from article 3



Note. Recommendations from the article on change include discussing philosophical approaches to develop a shared understanding and mutual buy-in early in the process, discussing new approaches in committee meetings so earlier adopters can provide opinion leadership, treating the process like an innovation in departments that have not experienced this process, and connecting earlier adopters with later adopters for the purpose of developing implementations for pedagogical and procedural innovations. Adapted from "A model for facilitating curriculum development in higher education: A faculty-driven, data-informed, and educational developer-supported approach" by P. Wolf, 2007, *New Directions for Teaching and Learning 112*, p. 17. Copyright 2007 by Peter Wolf.

It can also be concluded that communication differences across adopter categories existed. Earlier adopters sought information about the innovations in the curriculum review process in different ways than later adopters, as earlier adopters sought out conferences and other experiences to introduce them to the innovations and

later adopters were introduced through the project itself. Earlier adopters were more connected outside their own social systems, or more cosmopolite (Rogers, 2003) than later adopters, and earlier adopters mentioned being connected to outside entities in teaching and learning. Earlier adopters had more contact with the change agent through attendance at meetings and involvement with the teaching and learning office. Earlier adopters showed more mass media exposure than did later adopters and discussed publications in their field supporting innovativeness. The earlier adopters also showed more opinion leadership than the later adopters and were mentioned by numerous other faculty as being a leader in innovativeness.

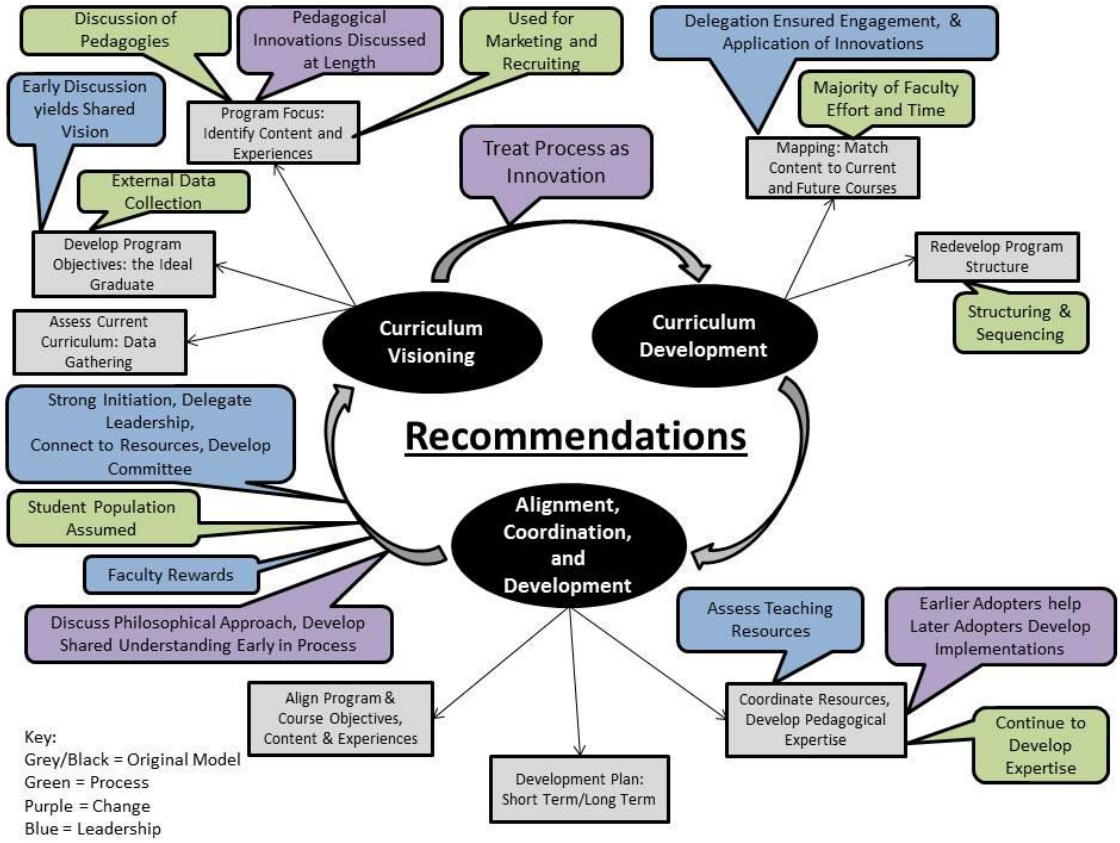
Several recommendations regarding the faculty developer's and departmental leadership's roles as change agents come from this study (Figure 4). First, not all faculty members will be equally enthusiastic about all pieces of the project. The curriculum development process itself should be treated as an innovation. This department had not examined its curriculum systematically in many years, so this process represented an innovation to almost the entire department. Those who were familiar with curriculum design from being involved with programs outside the department were a minority and demonstrated practices of earlier adopters of innovations. Faculty developers and curriculum specialists should take advantage of their knowledge, using them to help later adopters to imagine and develop applications for pedagogical and curricular innovations. Because later adopters in this study needed the information provided by the examples discussed by earlier adopters during committee meetings, faculty developers and

curriculum specialists should plan committee meetings to allow time for these discussions.

Recommendations for Practice from All Three Articles

To summarize the previous sections, these recommendations flow in many of the same directions (Figure 5). Practitioners should focus time in the early phases of the project to discussion of philosophy and approach which will lead to the development of a shared vision. This spirit of discussion should carry over into the visioning part of the curriculum development process as pedagogical innovations used by earlier adopters are shared with later adopters in committee meetings. Practitioners should make the faculty committee aware that a majority of their time and effort will be spent in the development phase, and that they will have developmental tasks delegated to them. Finally, as the project nears implementation, faculty developers should promote mentoring relationships between earlier and later adopters for the purpose of implementing pedagogical and curricular innovations.

Figure 5
Wolf model with recommendations from all three articles



Note. Recommendations from this study focus on the early phases of the project and practices to be implemented by leaders and faculty developers to help this process be successful. Adapted from "A model for facilitating curriculum development in higher education: A faculty-driven, data-informed, and educational developer-supported approach" by P. Wolf, 2007, *New Directions for Teaching and Learning 112*, p. 17. Copyright 2007 by Peter Wolf.

This process would take five years to fully implement. The first year of the project should be spent collecting stakeholder data, gathering information about licensure in the field, synthesizing literature on innovative course design and pedagogy in the field and developing a shared vision by discussing philosophy, approach and moving toward a clear articulation of the characteristics that graduates should have. Faculty developers and other leaders should also spend time analyzing faculty members

to identify innovators and early adopters who will provide opinion leadership for these and other innovations. The department head should promote the project and a vision for the department relentlessly throughout this process and implement a plan to include participation in the development project in the promotion and tenure plan for the department. The department should also examine its assessment plan, both formal and informal, to identify measurable outcomes which can be used to benchmark changes in the new curriculum.

The second year should focus on the development phase. Faculty should be involved in developing student learning outcomes based on the data collected. A faculty retreat should serve as a time for the whole faculty to get up to date on the project and to outline a broad structure for a new or reviewed curriculum. After this, a smaller committee should work to develop ideas originating at the retreat. Committee meetings should focus on discussing implementation of student-centered learning strategies. The committee should provide peer review of the courses that are developed and implementation of the pedagogical innovations is to be expected. After the development phase, any changes that need approval from university committees should be submitted.

The third year should be spent developing assessment and pedagogical expertise in preparation for the implementation of the changes. Innovators and Early adopters should team up with later adopters to assist with generating implementable ideas for learning experiences and assessments of those experiences. Leaders should develop a plan to allocate teaching resources such as personnel, space and equipment.

The fourth year should be the first year of implementation. Leaders should initiate rigorous data collection procedures to track the effects of the changes, comparing those to the benchmark data collected in the first year. This comparison should be repeated yearly. Faculty members should be encouraged to submit publications to teaching and learning journals in their fields. The fourth year should conclude with a faculty-wide review of the assessment data. This review should produce a specific plan to address any areas for improvement. These improvements should be implemented in the following year, and teaching expertise should continue to be the focus of faculty development.

Future Research

Future research should focus on studying implementation. The focus of this research should be to check adherence to the planned curriculum, both in the individual courses, the teaching styles of faculty and for the program as a whole. As implementation progresses, questions about the attractiveness of the curriculum to students and the level of rigor and its effects on student achievement should be examined. Further, a long term study should focus on the career readiness of students after graduation. This would assist the department in assessment and continuous improvement efforts as well as confirm the usefulness of this process for improving student achievement and career readiness.

The work of the leaders should be examined as implementation begins. The transformational leadership practices found in these studies were important to the successful completion of the curriculum proposal. This research should focus on

examining the continuation of those transformational leadership practices through the course of the implementation process.

Any additional research in this area should follow the adopters as they journey through the implementation process. This research should focus on the different experiences of implementation those adopters might have, on their difficulties and questions as well as on their successes. Further, because Zayim et al. (2006) found that training needs differed between early and later adopters, additional research should explore the effectiveness of the continuing pedagogical development of these faculty members to see if their training needs are different during the implementation phase of this project, not just in training.

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APPENDIX A

IRB APPROVAL

TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

1186 TAMU, General Services Complex
College Station, TX 77843-1186
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http://researchcompliance.tamu.edu

Human Subjects Protection Program | Institutional Review Board

APPROVAL DATE: 27-Jul-2011

MEMORANDUM

TO: JARVIS, HOLLY

77843-2116

FROM: Office of Research Compliance

Institutional Review Board

SUBJECT: Initial Review

Protocol Number: 2011-0514

Title:	Case Studies in Leading Comprehensive Curriculum Change in Higher Education
Review Category:	Exempt from IRB Review

It has been determined that the referenced protocol application meets the criteria for exemption and no further review is required. However, any amendment or modification to the protocol must be reported to the IRB and reviewed before being implemented to ensure the protocol still meets the criteria for exemption.

This determination was based on the following Code of Federal Regulations:
(http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm)

45 CFR 46.101(b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior, unless: (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Provisions:

Comments:

This electronic document provides notification of the review results by the Institutional Review Board.

APPENDIX B

INFORMED CONSENT

Version: 06/08/11

INFORMATION SHEET
Case Studies in Leading Comprehensive Curriculum Change in Higher Education

Introduction
The purpose of this form is to provide you (as a prospective research study participant) information that may affect your decision as to whether or not to participate in this research.

You have been asked to participate in a research study about curriculum change in higher education. The purpose of this study is to examine the departmental process of comprehensive undergraduate curriculum revision in two departments at a large land grant university in the southwest. You were selected to be a possible participant because of your participation in the departmental process of curriculum change.

What will I be asked to do?
If you agree to participate in this study, you will be asked to complete an interview. This study will take one hour.

What are the risks involved in this study?
The risks associated with this study are minimal, and are not greater than risks ordinarily encountered in daily life.

What are the possible benefits of this study?
You will receive no direct benefit from participating in this study; however, a greater understanding of leadership and change processes associated with comprehensive curriculum change will be gained.

Do I have to participate?
No. Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Texas A&M University being affected.

Who will know about my participation in this research study?
This study is confidential, and all references to this interview data will be by assigned a unique identifier by the researcher. The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only the researcher, Holly Jarvis, will have access to the records.

Whom do I contact with questions about the research?
If you have questions regarding this study, you may contact Holly Jarvis at 254-855-3844 or by email at hollydjarvis@live.com. You may also contact Dr. Kim Dooley at 979-845-6923 or by email at k-dooley@tamu.edu.

Whom do I contact about my rights as a research participant?
This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or irb@tamu.edu.

Participation

Version: 06/08/11

Please be sure you have read the above information, asked questions and received answers to your satisfaction. If you would like to be in the study, please reply to this email and I will contact you about scheduling an interview.

Sample e-mail correspondence:

Hello,

My name is Holly Jarvis, and I would like to solicit your participation in a study to examine the departmental process of comprehensive undergraduate curriculum revision. You were selected to be a possible participant because of your participation in the departmental process of curriculum change. If you agree to participate in this study, you will be asked to complete an interview. This study will take one hour.

The risks associated with this study are minimal, and are not greater than risks ordinarily encountered in daily life. You will receive no direct benefit from participating in this study; however, a greater understanding of leadership and change processes associated with comprehensive curriculum change will be gained.

Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Texas A&M University being affected. This study is confidential, and all references to this interview data will be by assigned a unique identifier by the researcher. The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only the researcher, Holly Jarvis, will have access to the records.

If you have questions regarding this study, you may contact Holly Jarvis at 254-855-3844 or by email at hollydjarvis@live.com. You may also contact Dr. Kim Dooley at 979-845-6923 or by email at k-dooley@tamu.edu. This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or irb@tamu.edu. Please be sure you have read the above information, asked questions and received answers to your satisfaction.

If you would like to be in the study, please reply to this email and I will contact you about scheduling an interview.

APPENDIX C

INTERVIEW PROTOCOL

Interview Protocol

1. Tell me a little bit about your experience with curriculum development/course development before this project. What do you see as the need or driving force behind this process?

2. What is the goal as you see it?

3. Has that perception changed over time for you?

4. How would you describe the departmental climate with regard to innovativeness and change in general?

5. What kinds of departmental climate characteristics have had an enhancing or limiting effect on the process?

6. How has the departmental leader had influence on the process?

7. How would you describe the style of the leader of your section, this project, the department throughout this process?

8. What kinds of innovations, or new concepts/tools/ideas, have you seen throughout this process?

9. What was your response to those innovations?

10. Who did you look to for support if you had questions or concerns about the innovation?

11. How have you integrated some of the concepts into what you're doing or planning to do in your classes?

12. Has the process changed how you think about teaching in this department?

13. What do you think will happen with this project in the next 6-9 months?

APPENDIX D

PEER DEBRIEFING MEMOS

PEER DEBRIEFING MEMO

TO: DR. KIM DOOLEY
FROM: HOLLY JARVIS
SUBJECT: PEER DEBRIEFING MEMO 1
DATE: 9/27/11

So far I have interviewed 10 people who were involved in the project on many different levels. As of this morning, I have scheduled interviews with 4 more, and have invitations out to 6 additional people. After an initial content analysis, the things that seem to be emerging can be grouped in

- Teaching – This category includes faculty discussion about how the process has changed their perceptions of what needs to go on in their classrooms, how they approach their syllabi, and their emphasis on teaching skills through active learning. A sub-portion of this involves looking at micro-assessment (at the activity level) as a way to get quick feedback about how things are going for both students and for the way the faculty member is teaching the class. This also applies to assessment at the program level. Another sub-portion of this reflects a pattern of teaching in the same ways in which the faculty themselves were taught.

- Change – This category encompasses comments about how the faculty members themselves processed some of these changes. One faculty member

mentioned that he had attended a STEM teaching conference, and that this was what began his journey. This person was identified by other faculty as a person to whom they looked as a role model. Another faculty member, one who self-identified as being slow to change, likened his internal process to the stages of grief. Others have been less dramatic, but this category includes several units of data that compare older and younger faculty, and point to the buy-out program coming at a convenient time such that those who did not want to make these changes could have an opt-out.

- External Pressures and External Help – There is a wide range of responses regarding the necessity for the project coming from external pressures, and in turn, needing to please those external entities. There are also mixed responses about the help that was provided from the CTE. Some welcomed it, and some saw it as being touchy feely, pointing directly to the basis for decision making as being decidedly non-scientific. This comment was intended to indicate that the differences between social science and hard science were not as openly embraced as some would have liked. This category also includes discussion about campus politics involving approvals and protectionism as well as budgets and funding.

- Leadership – This category has been difficult to develop. I have collected several comments about the quality of leadership that was provided, but even with some pointed probing, have had little success with developing an idea of

what that means for them. A small group of faculty were able to expand on this concept, and some gave examples of what they thought to be good or bad leadership.

- Student impacts – This category includes concerns related to student needs, impacts on students, questions about grandfathering students as the program transitions. A majority of faculty identify the project goal as being the welfare and progress of students. One faculty member expanded on this idea by commenting that the move to narrow the student academic experience to such a degree that they do not have opportunities to see other fields or applications of knowledge. A sub-group within this category relates to staying relevant and current to what society needs agriculturalists to be.

There are several other smaller categories that relate to these larger ones, but there are very few units in them.

I have been seeking expansion of the Leadership category, as well as being more careful about seeking follow up information about the processes of change people went through.

During the peer debriefing meeting, we discussed the categories. Each category could be broken down into sub-themes. It is unclear at this point how the themes should be grouped for the writing process. We also discussed the possibility of breaking apart the External category into two categories, External Pressure and External Help.

PEER DEBRIEFING MEMO

TO: DR. DEBRA FOWLER

FROM: HOLLY JARVIS

SUBJECT: PEER DEBRIEFING

DATE: 9/30/11

So far I have interviewed 14 people who were involved in the project on many different levels. As of this morning, I have interviewed my final participant. I believe that I have reached the point of data saturation. After an initial content analysis, the things that seem to be emerging can be grouped in the following themes.

- Teaching – This category includes faculty discussion about how the process has changed their perceptions of what needs to go on in their classrooms, how they approach their syllabi, and their emphasis on teaching skills through active learning. A sub-portion of this involves looking at micro-assessment (at the activity level) as a way to get quick feedback about how things are going for both students and for the way the faculty member is teaching the class. This also applies to assessment at the program level. Another sub-portion of this reflects a pattern of teaching in the same ways in which the faculty themselves were taught.

- Change – This category encompasses comments about how the faculty members themselves processed some of these changes. One faculty member mentioned that he had attended a STEM teaching conference, and that this was what began his journey. This person was identified by other faculty as a person to whom they looked as a role model. Another faculty member, one who self-identified as being slow to change, likened his internal process to the stages of grief. Others have been less dramatic, but this category includes several units of data that compare older and younger faculty, and point to the buy-out program coming at a convenient time such that those who did not want to make these changes could have an opt-out. Additionally, faculty are falling into the groups of adopters as defined by Rogers (2003), including innovators, early adopters, early majority, late majority and laggards.

- External Pressures and External Help – There is a wide range of responses regarding the necessity for the project coming from external pressures, and in turn, needing to please those external entities. There are also mixed responses about the help that was provided from the CTE and other outside entities who were drawn in. Some welcomed it, and some saw it as being touchy feely, pointing directly to the basis for decision making as being decidedly non-scientific. This comment was intended to indicate that the differences between social science and hard science were not as openly embraced as some would have liked. This category also includes discussion

about campus politics involving approvals and protectionism as well as budgets and funding.

- Leadership – This theme became more developed as the study progressed. This theme shows the most variety within the responses. It was difficult to get respondents to describe the leadership in concrete terms, and most described their own responses to the project. The ones who could articulate a description of the leadership were complementary toward the dedication, vision and effectiveness of the process. The responses also included critique of the leadership, including suggestions for improved communication and timing of the project.

- Student impacts – This category includes concerns related to student needs, impacts on students, questions about grandfathering students as the program transitions. A majority of faculty identify the project goal as being the long term welfare and progress of students. One faculty member expanded on this idea by commenting that the move to narrow the student academic experience to such a degree that they do not have opportunities to see other fields or applications of knowledge. A sub-group within this category relates to staying relevant and current to what society needs agriculturalists to be.

After this meeting, we discussed the goal of making the categories more mutually exclusive, improving the definitions of each, and reviewing the contents to ensure that

the meaning of each category was more clear. We also discussed the nature of emerging data, and the approach that should be taken with the writing.

PEER DEBRIEFING MEMO

TO: DR. KIM DOOLEY

FROM: HOLLY JARVIS

SUBJECT: PEER DEBRIEFING

DATE: 10/18/11

After completing all of the interviews (14), I developed a document which reflects the classification scheme I have developed which encapsulates the emerging categories, provides examples of each category and gives a definition of those categories and subcategories.

Category 1: Environment and External Issues

Units in this category made reference to situations outside the direct purview of the department, but which influence the department in some way. This category includes units that refer to budget concerns, the inefficiencies of bureaucracy, political pressures, accountability to external offices, and budget concerns. The key quote that defines this category:

We are reticent toward bureaucratic demands. We know it is a lot of extra hard work.

Subcategory 1A: Budget concerns. This was the largest subcategory for this particular category. This subcategory dealt with the environment of uncertainty caused by budget cuts, resource issues framed within a larger reference to budgets, salary stagnation, and losing faculty positions within the department.

It might have been better in a better environment, you know, without budget cuts and reduction in faculty.

There are also other resource questions – lab space, faculty to teach the labs, the teaching load of other faculty, budget cuts and no opportunities for increasing funding.

Plus we're getting pressure from the research side. You know, if you want to keep your technician, then you have to keep this money coming in.

And we have all of this and there will be 6 faculty retiring.

You get all of that and you put it on the backdrop of all the retirements and stagnant salaries.

Subcategory 1B: Accountability to external offices. Responses in this subcategory referred to the project's purpose being to please outside entities, to eternal accountability in a general sense.

The goal is to satisfy administrators who may have seen a lack of change and perceived it as stagnation.

People don't understand that when they say accountability, they mean bureaucracy. Accountability in schools, like TAKS and STAAR means more bureaucracy.

I thought that more than anything, this had to do with assessment. We need to get some sort of accountability in our curriculum.

Subcategory 1C: Political pressures. These comments focus on the larger pressures that exist in the larger political context of the university.

I guess we're moving into an era where politicians are micromanaging so much, and telling us that students are adults, but that they are not really adults.

I'll be happy when this university gets pressured to be a research university again.

If the Vision 2020 thing is still a priority, and if we still want to be a tier 1 research university, there is going to have to be a consideration of teaching and research balance.

Subcategory 1D: Inefficiencies of bureaucracy. This was a small group of comments focused on the increase in the amount of paperwork without an increase in efficiency.

Paperwork is something that has changed since I've been here. It's more online now, and I don't know if it's made things more efficient or not. It has added autonomy, but not necessarily efficiency.

Category 2: Leadership

This category contained descriptions of the leadership style of both the department head and the committee chair. The key quote for this category:

They drug us through.

He's a cheerleader for things. He doesn't get negative at all. He did a good job bolstering people during a lot of this. He did push this forward.

He did a good job sharing his vision for where he thought we should go.

As far as promoting factors, the department head was the promoting factor. Whatever the rationale was, the administration wanted this, and it got done.

He always stepped in when he had something in mind that he wanted. When there was something he wanted, he would say so, like with the forages.

He is not afraid to make a change. He's not afraid to swing the pendulum the other way. He will always help a person to pursue what's next and fill the gap with what they're doing. He directs. He's intelligent. He works hard and long. He has a good vision for what it takes to be an excellent department.

The department head sort of removed himself from the process and was not really involved at all in the early stages. This was left pretty wide open, and we were free to open any cans of worms that we wanted, and go down all the dead ends that we wanted. It seemed like an inverted leadership model to me. If he had goals in mind, they should have been presented from the beginning.

I wish that the department head would have stepped in and made some decisions when there was a stalemate, but he likes shared governance. Shared governance is good, but sometimes you need a benevolent dictator to step in.

I thought at the time he was not a good choice. However, I was pleased with Jim's approach. I was impressed with how the process moved, and with how he reached out to get help within the process. I was pleasantly surprised with how he handled things. I never spoke out about this, but I went from a skeptic to a believer.

Jim was sincere, and dedicated, and he was overloaded during this process, especially on the tail end of this. He was patient and dedicated. I don't know how he got that assignment, but whoever did it chose well.

The main thing that got it through was [the committee chair]. He was not crazy about it when he got it, but he plugged along and got it done.

I did not know him well before this process, but I have gained a lot of respect for him.

Well, the leadership has been fantastic. He has kept everybody on board and up to date.

I also learned that [the committee chair] is quite a delegator.

The communication could have been better as far as what was going to happen, but I guess he probably didn't know or we would have discussed it.

He used threatening language, like "They better do this," then there was nothing to back it up. I felt that he steered the project toward his own personal interests. On the positive side, without him, this would not have gotten done.

He was respectful, and allowed everyone to contribute who wanted to.

The real core of this project was the fact that the younger faculty got to push their ideas forward.

The leadership was strong, but my visions were different.

I didn't get all I wanted, but I feel like I had an influence on the process.

I'm not sure whether the rationale behind this was genuine, or whether it was based on checking this off someone else's agenda.

If we have an issue with a lab, with transportation, the leaders will fix it. They will find a solution.

Category 3: Change

This category as a whole summarized the sentiment of faculty about the change process. This includes attitudes among faculty as well as the experiences which have conditioned those attitudes. Age was mentioned as a contributing factor to openness to change, and alternative viewpoints suggested that the varied experiences and individual traits of each faculty member had more to do with innovativeness than age. Further comments summarized the overall resistance to change within the department from a position of faculty engagement or disengagement in the process. Finally, faculty expressed the degree of change that they perceive from the old to the new curriculum. The key quote for this category:

A limiting factor was entropy and the ideas of those people who didn't want to change.

Subcategory 3A: A conservative department. These statements describe the respondents' views of the department as a whole regarding openness to change. These reflections varied from saying the department was closed, to staying that the people within the department were very open to change.

Department as a Whole

In the college, and in agriculture in general, in fact in all university systems, we are a pretty conservative people.

We're pretty fixed.

I think the major limiting factor was hard headedness, not being willing to change.

I don't think many leopards will change their spots.

I had heard that it was a place that was stifling, and anti-change, but that was when I got here. As we started on the project, a lot of the older faculty had the attitude that they didn't want it to happen. But every person, minus one exception, came with new ideas, and they were all very different. People were supportive.

Openness/Closedness

They have been extremely open.

I'd say that we are a pretty resistant group.

Subcategory 3B: New and established faculty. Many faculty expanded on the change idea, stating that age was a factor influencing the general resistance to change in the department. Retirements within the department account for a large portion of these comments. Others thought that age was not a factor, but that the individual's general attitude toward change was what mattered. There was also a fairly large group in this subcategory related to how the group process allowed younger faculty to work with more advanced faculty, and how this positively influenced the change process.

Age

There are a few older people who change readily. I think it's more tied to age than anything else. For the most part, we are an aging group.

We are kind of slow to embrace change, and I would say that the older you get, the less you want to embrace change. So you probably have resistance to change and new ways.

We've had a hard time with some of the old timers on this.

After this upcoming round of tenure and promotions, there will only be four assistant professors. Our department seems like it got old fast.

Effect of Retirements

I know that I have gotten used to doing things a certain way, and that if I had been here for 20 years, doing things one way for my whole career, that I would not want to do things differently for the last 5 years of being here.

Maybe there will be people come who are willing to try new things, while some of us going out didn't want to.

It will be interesting to go back and see in the next few years, because there will probably be a whole new set of players. We lost six with the current offer of separation, and there will be three to four more who will leave in the next year to year and a half.

General Attitude

You have the faculty that regardless of age are always being creative and coming up with new things.

I'm a person who doesn't embrace change right away, and there are a lot of people who are the same way.

I think change is easier for newer faculty.

Some of us approach change readily at the professorial level. We are always getting new information to convey to students, getting that in our classes.

Group Process

We had a good cross section of faculty involved, old and young. Some had not had much opportunity to work with undergraduates because they were young. After getting to know them, I understood better where they were coming from.

I gained respect for my colleagues because I learned more that about them that warranted that respect.

We have creative people with good ideas. We moved along mainly because of the people that bought in.

Some of the older among us who didn't really want to go along were able to step out of the way and say that the younger people would probably be the ones to take this curriculum to its next steps.

Subcategory 3C: Engaging faculty. Comments that fell into this subcategory referred to reasons for being willing or unwilling to engage in the process of change, including past experiences with change attempts.

Engaging Faculty

About the process, I wish a larger number of faculty would have really embraced the process instead of just going through it. There were a large number of faculty who just went along with getting it done, and some went kicking and screaming. Those were the ones who were saying they weren't going to change what they were doing.

Reasons for Disengagement

People will always say that they are eager to have change, but when it comes right down to it, they will be protecting their own turf and their own relevance.

"You're going to dictate to me what I'm teaching in my class? I was hired to do this thing, to add this thing to the department." (indicating summarized feelings of others this person had talked to)

Past Experience with Change Efforts

One limiting factor was that there were attempts made to change things in the past, and they have gone nowhere.

Many of us have been here long enough to see attempts at change and have nothing happen. This is the case for a majority of the committee.

They thought that the change was not going to go into place, then there is the realization that we really have to do this now.

Subcategory 3D: Degree of Change. This collection of comments indicates that the degree of change is not as great as the initial perception would have led one to believe it was going to be.

I really don't expect that our students will have a different slate of capacities than in previous years. I would expect some, but not huge.

I think we met the Delphi already.

There is very little change there. It's more of a revamp of things. Most of the things on the new syllabus were not necessarily on the old syllabus, but they were in the class.

But the list of questions and objectives, I suspect that's similar to what we would have gotten otherwise had we not gone through the process.

The skills that were identified were not well addressed by our curriculum. The skills are what is really new about this.

Category 4: Teaching

This large category contains all of the units that refer in any way to teaching. This includes references to the discussions in committee meetings about teaching philosophy and style, references to developing experiential learning strategies, and dealing with assessment. This category also contains comments about how retirements will affect teaching in the department, and how the curriculum process caused faculty to think at the curriculum level about the content of the courses. Two small subcategories include comments about how to keep course content fresh and exciting for students, and alternative perspectives on raising the bar on teaching in the department.

Subcategory 4A: Discussions about Teaching. These comments refer to the discussions the committee had about teaching philosophy, teaching style, the desire to teach well, addressing student needs, developing syllabi.

Discussing Teaching Philosophy and Style

There was some good discussion about teaching and improving effectiveness.

I learned that curriculum was about what to teach, but I'm more interested in how to teach. Looking at the curriculum, at the big picture, is hard work, and I have more of an interest in looking at teaching than curriculum.

I don't spend my spare time looking up new things about curriculum. I spend my spare time reading articles about soils.

We don't have training in learning theory, people just usually do it the way they have seen it done.

When I went to school, there was only lecture, take notes and exams, and it was good. To change from that is difficult.

Additionally, my teaching methods have changed. The traditional way I was teaching will not fly.

Addressing Student Needs

The need to accommodate those differences was something I needed to think about. I don't think there is a willingness on the part of faculty to address student learning like this.

Developing Syllabi

I prepared my syllabus based on the Delphi. I feel empowered when I talk to students about the syllabus objectives. Even my graduate student TA spoke passionately when he was introducing the syllabus to the students. He said that your professor had talked to your future employers, and this is what they want you to know. I feel like I'm focusing on the right stuff.

Subcategory 4B: Experiential Learning. This large subcategory includes faculty giving examples of using experiential learning in their classrooms, critique of experiential learning strategies and developing the personal attitudes and pedagogical techniques to prepare for using experiential learning techniques in the classroom.

Examples of Experiential Learning

I'm also doing a lot of things like pair-and-share. I'm having them write about what they just learned. It's good for participation and for taking roll.

We're taking a field trip to Mississippi to look at Mid-South agriculture for a weekend. We're also visiting a gin, the research farm, a chemical company, Coufal-Prater. This is going to give them exposure to things they need to know to feel confident with production agriculture.

One thing I do (gets out iPad, sets it up to connect to desktop) I use this in my class the other day to give a demonstration on the separation of colors, which is a "Gee Whiz" thing

we do, and for the most part, it worked. And this "Gee Whiz" stuff is usually just to get them excited about things. I started out class, then left them there and went to my lab on the 6th floor and did the demonstration. When I appeared on screen from my lab, they were all like "cool – he was just here." I did the demonstration, and they go to see it close up. There are 46 people in that class, and I can't have them all up in my lab watching this. So I got to ask them questions about it, and really interact with them about the demonstration.

I've stopped lecturing and gotten out samples of sand, one with that's round and one that's jagged. I ask them what would cause this difference – and it's the windblown gives you jagged edges and the other has been in a river. Then I ask, if you found this at a scene, what would that tell you? I try to get them to observe, to think.

I also have students develop questions for each other, so they can blame each other for the questions being hard.

Criticism of Experiential Learning Movement

My concern is with all of this experiential learning, and I agree with it. But where do we talk about the burden on the teacher? With our research commitment, and with people leaving, are we overloading ourselves? Can we handle this, and simultaneously get Oxygen to those who are teaching?

I'm not used to the idea of putting window dressing on things, sugar coating things, and holding their hands all the way through it.

Some faculty use the clickers to get feedback, and you can really do it right. If you get 50 percent right on the first opportunity, you can go back and go through something again. Then if you get 75% that get it right, that's good. But you have to go back over it again.

You would have to have a smaller class size to make some of the alternatives work.

Developing Experiential Learning for Classroom Use

I've been in a process of self study on this and have changed my perceptions of what needs to be done regarding learning activities in the classroom.

The amount of incorporation of experiential learning was good. That's stuff I had heard about, but that's the kind of thing needs to be done.

Using learning activities is harder to do until you've been through it a few times. You've got to build a library.

Getting it set up is the thing.

Subcategory 4C: Relationship of Teaching to Assessment. This subcategory highlights the relationship between teaching and assessment. It includes discussion about increasing knowledge about assessment, assessment at the course level and program level, as well as some hesitance toward assessment.

Increasing Awareness about Assessment

We have to know that we give appropriate attention to the content. We have also given no attention to how we're examining.

I have learned that there are other ways of seeing how students are doing.

I have formalized my knowledge about assessment. I don't do it as well as I could or should, but I am better.

Assessment in Courses

We can't go back to lecture-multiple choice. If we do that, we've gone backwards.

I have started giving extra credit work, project work, and the like in there. Because how I used to teach my 302 class was 3 tests and a final, and now I have added some things outside that.

By doing a pretest, I can gage what knowledge they have, and then I can adjust the syllabus depending on the group. If they all get a perfect score on the pretest, I can adjust. That flexibility allows me to cover the outcome by going into something deeper that might be more advanced.

I have also put more thought into my quantitative feedback. I don't want to wait as long. There needs to be a shorter time for the feedback to get to the students.

Until it's taught, until it gets presented, until there is student feedback, you never know.

Assessment at the Program Level

In the next 4-5 years, I think that we will develop our expectations of what they should remember and know and be able to do 5 years down the road, after they graduate. Big picture stuff – what do they have to know?

Hesitance about Assessment

That's the thing with assessment. We have to be careful not to remove too much individuality from what goes on in the classroom.

Students don't want so much individual attention.

Why is it that students are hesitant? Perhaps they have been lectured to too much, and they don't know how to do that.

Subcategory 4D: Effects of Retirements. Retirements in the department have an influence on teaching assignments, teaching capacity, and generate anxiety about the balance of teaching and research.

Teaching Assignments

I would say that it was affected by the reduction in force, and after this gets approved, the increase in teaching load will affect attitudes.

You can't ignore losing more than 200 years of teaching experience. Who will replace them? Who is going to teach the classes they've been teaching for so long?

Teaching Capacity

One criticism is that there was no assessment of teaching capacity.

But with the retirement of 6-8 of the people that have been instrumental in this process who are leaving, we lose a lot of that knowledge.

What bothers me is that we run the risk of leaving a good deal of the science behind because we just have fewer people.

Some faculty will be teaching an undergraduate course for the first time.

We have such a large department with so few people involved in teaching undergraduates. There are many who are involved in only teaching graduate students. This has two effects, one being that they need extra time to get caught up, and two that they have unrealistic expectations of what undergraduates are like. They only get to see graduate students, they don't get to see the average undergraduate student. There are lots of layers of selection between undergraduate and graduate school, so they skim the cream off the top. They don't see the student struggling to maintain a 2.2 or lower. They have an unrealistic expectation of their abilities.

Balance of Research and Teaching

I think that this idea of modular teaching is going to be a way to get all of the teaching responsibility done. You take 1/3, I take 1/3, and someone else takes 1/3. This might be the way we have to do things just to keep up with our research responsibilities and also fill our teaching requirements.

If teaching is going to become a push, they are going to have to reassess the teaching versus research load.

Subcategory 4E: Interface of Curriculum and Teaching. Faculty reflected on the process and how thinking about the curriculum as a whole affects teaching at the course level.

This process has made me think in greater depth about elective courses that students take, about how you would go about creating that. Hopefully, it has made an impression about how to think about things.

I know there was a lot of overlap in what was being done, and again, it goes back to the idea of the basic principles being taught.

If duplication is good, then we need to know that, and how much duplication gets us to where we want to be.

At least now we have a skeleton of material out there, and people can plug in to that. When people leave, and we hire new people, can we keep the skeleton intact, especially when we bring people in with different expertise.

Subcategory 4F: Keeping Material Fresh. This small category contains units of data which refer to the faculty member's efforts to maintain updated content in the classroom.

Having streamed, dynamic content like this is important.

This process didn't change the class curriculum, but it did change what I focus on. Now, I push skills like writing and inferring.

In terms of labs, though, we are intending to make changes such as giving students the opportunity to problem solve, to work in groups, and to get the interaction.

Subcategory 4G: Raising the Bar. Threaded through the subcategories in this larger category is an assumption that this project was meant to raise the bar on teaching in this department. One faculty member presented an alternative viewpoint.

Raising the Bar

We have wanted to raise the bar with teaching through this process.

Alternative Viewpoint

I didn't get that it was supposed to be about getting new things in teaching. There were so few of us involved consistently over the course of the program. If the goal of the program was to improve teaching, the whole department should have been involved. That wasn't what I was looking for.

Category 5: Student Impacts

This category includes faculty comments about the impact the curriculum and course changes will have on students in the program and outside of the program. This includes comments about the goal of the project to be relevant to stakeholders who hire the graduates which encompasses critique of the bureaucratic system of approvals. This category also includes references to recruiting students, discussion of raising the rigor of the program, implications of narrowing the student experience, and comments about the prospect of a new curriculum from students as reported by faculty. They key quote for this category:

My fear is about what kind of impact this will make on our students.

Subcategory 5A: Staying Relevant. Faculty identified the need of employers and society to have students ready to serve in timely and relevant ways. However, bureaucracy, which is part of the university curriculum course change process, works against some of these needs.

Meeting Needs

I see it as a need to be relevant to the educational needs of students, and to connect the needs of students to the needs of employers, society and the general clientele in the world.

Students need to be prepared to deal with the serious problems we face like feeding people and maintaining environmental quality.

It's important for society. When some NGO comes out with some statement about transgenics, students need to be able to have some kind of knowledge about it to be able to say whether their claim has any merit or whether it doesn't. It's this type of knowledge that our students need to be prepared with for society's sake.

Bureaucracy

In doing so, we also want to provide them with a relevant curriculum to bolster their career possibilities. We also want to be timely.

One thing that I have found out that has changed, is that the bureaucracy of this university goes against an emphasis on being current.

If you put today's cultural issues as part of the class title, it's difficult to be current. It's like the Arab Spring, if you submitted it as a class today, by the time it became a class, it would be history. It is no different with drought right now, by the time we got that through, we would be dealing with flooding.

Subcategory 5B: Recruiting Students. Issues surrounding recruiting students involved comments on the quality and number of students, where students come from to find the department and transfer entry issues relating to course transition, and changes in the field that influence the perceptions of students who are being recruited.

Number and Quality of Students

This goes back to the naivety of the faculty, and them knowing how few freshmen we really have, and how many come in as juniors.

Of course, the goal has always been to develop a curriculum appropriate for our undergraduates that was challenging and interesting. Well, I hesitate to use "enticing"; it might be better to label it as "not boring". Being labeled as boring to 18-year-old high school jargon can get you in trouble as a major. It is a label to avoid.

I am also concerned about balancing undergraduate numbers with the challenges we put in front of them. If we expect to have a bunch of 3.0 and higher students, we will be a small department.

We have a lot of undergraduates who are the bottom of the barrel, who have been rejected from other programs.

Where Students in the Department Come From

The best recruiting tool we have is the environmental science minoring in soils. The 301 is a junior level course, and students get interested in soils through the course.

In that class, what we're really doing is selling Agronomy. (reference to the current 101 course)

There is no worse thing than working with a high school student or a junior college student then to find out that they couldn't get in. But you can go to general studies and be much more effective.

High school science has kind of a nerd designation that directs students to other science departments like biology. Soil and crop science just does not get exposed to students in high school.

Transfer Issues

There is the question of how long we will continue the old curriculum, when courses can be substituted.

I am also concerned about the large percentage of transfer students we have. At least on paper, students can get through, but in reality, I'm concerned about the prerequisites like the Gateway course. If it is only offered once a year, then that is an issue for transfer students, the people who are our meat and potatoes.

Recruitment Perceptions

We need to communicate that we are high tech, state of the art. We are doing exciting stuff here.

They are still going about soil science the same way, and incoming freshmen are thinking – oh, I didn't want to be a farmer.

A lot of soil science is taught as agriculture, and no one is onto how soils are so much more than that.

There are a lot of those who thought the future potential of the department was in genetic engineering, and soils was part of a waning public interest in environmental issues.

Subcategory 5C: Rigor. This collection of comments reflect the feelings of the faculty toward a perceived increase in rigor in the program.

The goal is to produce a relevant curriculum with a good deal of rigor so students can be prepared for their careers with the knowledge and skills that they need.

It's great to have the perception that rigor is increasing or decreasing in the major.

They might recognize it, but what's frustrating for faculty in a systems or capstone course is that students don't seem well equipped for class or a job with some of what they ought to have.

Subcategory 5D: Narrowing of the Student Experience. The decrease in program hours has resulted in protectionism and the result for students is that they are not exposed to a broad range of knowledge.

About that time, the legislature demanded that all undergraduate programs be 120 hours. We used to have 132 to work with.

The undergraduate programs council saw that people didn't want to cut their own department's hours, and as a consequence, what was once a broad degree became increasingly narrow. So students lose exposure to broad knowledge within the university and particularly the college, and students saw less and were exposed to fewer things. This resulted in departments wanting to protect their programs by increasing the number of courses taken within their departments and reducing the number of courses taken outside the department in order to protect their credit hours. This was a terrible mistake. Students don't get to shop around, they don't get to look around at other things.

We've done the same thing, to the detriment of students. We've made our program too narrow at the undergraduate level. Without the experience and exposure to other things, they have no appreciation for other fields of knowledge.

I wish they weren't so narrowly focused on turf and would realize some of the other subject matters we cover are important too.

Subcategory 5E: Student Feedback. Faculty reported that students were excited about these changes, however, there was also reflection about the impacts on morale not being what students expect.

And the students are more excited than anyone. They're pretty happy that this is happening.

The fact that it hits so quickly might have more of an impact on our numbers and the morale of our students than we think it will.

Category 6: Process

This category contains all units of data which referred specifically to the process, experience with curriculum and course design prior to the project, reaching outside the department for support, reflections on the effectiveness of individual procedural elements such as the retreat and committee meetings, sentiments about implementation. Key quote for this category:

I was a little leery at first and hesitant. Will it work? I had my doubts. But now I like it, I'm proud of what we've created. Some of it is not what I would have done, but it is good. This is a big change for our department. I went through different stages. At first, it was ignoring, then I didn't think we'd come to consensus about things. I thought it would be a mess, that we would not change anything. Then, I started thinking that it wouldn't get done. Then, I began to be afraid that I didn't think that it would look like agriculture anymore. I thought it might become something no one wanted and wouldn't resemble our mission anymore. Now I sense dread creeping back in as we have to actually do this. I think I just described the stages of grief.

Subcategory 6A: Background in Curriculum Development. Faculty commented on having little experience to bring to the table regarding the design of courses and curricula, and that they had received little to no help in designing the courses they have been assigned to develop. A few faculty referenced conferences outside the department as being helpful as far as background knowledge.

I think sometimes that you're left to sink or swim, and that you're expected at this level to know how to design a course curriculum, even without experience.

I have no experience here, apart from the CTE and Wakonse conferences on curriculum design and course design.

I asked people who taught for a long time. I also used materials from where I graduated, so I had some help to get me started.

Subcategory 6B: Reaching Outside the Department. This subcategory referenced the information from the Delphi study, as well as indirectly referenced the procedural help offered by the CTE.

The Delphi study – I've never been part of that or dealt with the consequences of one.

The Delphi was good, but getting that information from there to a curriculum was different.

We got input from other outside groups. We got to ask our questions, we got to give our input, we got to digest things, sort things out, and take things to the next step. We were also able to get the overall picture.

Subcategory 6C: Effectiveness of Procedural Elements. The largest subcategory in this category included comments that referred to individual elements of the process such as the retreat, the weekly meetings and assignments, and the use of outcomes. This subcategory also includes critique of the general approach to the process, as well as reflective impressions of the project itself.

Retreat

I still was a little unsure at that point. At the retreat, I felt in the process very uncertain.

Well, at that department meeting last fall, I didn't feel like I was prepared well enough.

Weekly Meetings and Assignments

I just was not in tune at the beginning. That's one reason why it was good that there were so many meetings, and the frequency of everyone getting together was important for bringing us along.

The small groups we had worked with in the beginning were really helpful.

The amount of information was overwhelming.

We would get 20 handouts, someone would say they were really good, and then would move on to something else. I need something simple.

You have to keep people on schedule, keep people engaged, keep up with their assignments while balancing getting my own thing done.

Use of Outcomes

It kept focus on the courses accomplishing the learning outcomes, and that allowed us to make sure the curriculum accomplished the learning outcomes. Without that we would have been a disaster.

It was good that we re-looked at those outcomes, and took stock of our prioritization of those outcomes.

And there were people on the committee who were so good at pulling us back, saying that you can't write a syllabus for a course that you are already teaching. It needed to be about the outcomes.

Critique - Negative

At first, I thought that this was engaging my creativity, but then we hit all of these administrative constraints.

I think we could have done more tweaking, and not have to completely start over from the ground up.

Well, the model is more a liberal arts model rather than a scientific model. By that I mean that it did not deal with quantitative information; it was not rigorous, there was no data, we didn't test our hypotheses. This process was for what we aren't. It was liberal arts – it was touchy feely.

Some of the social science stuff, I didn't really follow. As a scientist, I think differently than a social science person does. I have trouble when I can't express things as a principle or set of concepts.

When other things started to take up our time, like research and teaching, they became disenchanted with the program.

You can get excited, but feel beaten down. You can lose your enthusiasm and momentum. Some will talk louder than others, and your ideas can be flattened. After enough of that, what's the point?

Critique - Positive

I enjoyed this project. It opened my eyes.

In the end, this will be a positive improvement.

Subcategory 6D: Sentiments about Implementation. This subcategory included comments about the resources needed for implementation, as well as the general anticipation of the work associated with the implementation of the new curriculum.

Resources

It will be interesting to see how the resource question gets dealt with here.

What concerns me the most is finding resources and getting TA's. We will probably have anywhere from 50 to 75 students in each course and that means 4-5 lab sections per course, each with a TA. That also means finding space.

Implementation

I see that there will be a few stumbling blocks in front of us, and that there will be some hurdles, but our department will handle it well.

Some of the trepidation is that it will be more work for faculty.

After this meeting, we discussed the need to further develop the leadership category, and the possibility of using analytic induction to integrate theory into the data analysis. Further, we recognized the need to analyze the change perceptions in a different way, and looked for a way to present the change perceptions in an articulate and interesting way.

PEER DEBRIEFING MEMO

TO: DR. KIM DOOLEY

FROM: HOLLY JARVIS

SUBJECT: PEER DEBRIEFING

DATE: 10/25/11

I have reviewed the leadership units and analyzed them according to the transformational leadership theory you recommended. The following list is includes Bass's (2008) transformational leadership factors, the characteristics included in those factors and the units of data which match those factors. Also included in this analysis was transactional leadership. This was meant to serve as a check on my perceptions and analysis. Transformational leadership accounted for most of the data. A few units discussed the selection of the committee leader, and there were a few extraneous units that referred to leadership. I made an effort to include units that demonstrated the opposite of the transformational quality, but that did not fit in the transactional quality with its transformational opposite.

Transformational Leadership

- Factors (Bass & Avolio, 2008)
    - Idealized influence:
        - role models,
            - *He drives a Prius in Texas.*

- *He directs. He's intelligent.*
- *He was respectful*

- high standards of conduct,
  - *He works hard and long.*
  - *He did a good job and put in a lot of work.*
  - *You know it was him who bore the brunt of all of that and did all of the hard work.*
  - *He has kept everybody on board and up to date.*
  - *I thought it wouldn't move forward. The main thing that got it through was the committee chair. He was not crazy about it when he got it, but he plugged along and got it done.*
  - *The committee chair was sincere, and dedicated, and he was overloaded during this process, especially on the tail end of this. He was patient and dedicated.*
  - *Without the amount of work he put in, this would not have happened without him.*
- deeply respected,
  - *I was pleased with his approach once he had it. I was impressed with how the process moved, and with how he reached out to get help within the process. I was pleasantly surprised with how he handled things.*

- *I did not know him well before this process, but I have gained a lot of respect for him*
- *I never spoke out about this, but I went from a skeptic to a believer. There was no turning point, it just happened over time. There is nothing I can point to that was the change for me in that.*

- trusted,
  - *If we have an issue with a lab, with transportation, the leaders will fix it. They will find a solution.*
  - *And you need to be able to follow those people. They need to be noncontroversial, someone you can trust because they do have lots of power.*
  - *I'm not sure whether the rationale behind this was genuine, or whether it was based on checking this off someone else's agenda.*
  - *This would actually be a good time for administration to check this off their list, put it in their documentation and apply for another job before this goes into effect.*
- provide vision/mission
  - *He did push this forward.*
  - *My guess is that he was prodded on some level that this would get done. He responded well.*

- *On the positive side, without him, this would not have gotten done.*
- *If at a point, he would have said that the curriculum revision was not going to happen, it would not have happened. The fact that he supported the work spoke for that, it was what he wanted to go on.*
- *One promoting factor was the department head. Once he got behind this thing, it set the whole thing in motion.*
- *As far as promoting factors, the department head was the promoting factor. Whatever the rationale was, the administration wanted this, and it got done.*

- Inspirational motivation:
  - communicate high expectations,
    - *The communication could have been better as far as what was going to happen, but I guess he probably didn't know or we would have discussed it.*
  - inspire to a shared vision,
    - *The department head was encouraging and supportive, and he did a good job sharing his vision for where he thought we should go.*
    - *The department head's vision is to have a great department*

- *He has a good vision for what it takes to be an excellent department*
- *Being a faculty member in this department, it has been my business to be involved with many different things. When an opportunity like this comes along to be involved with something like this, and depending on what you're doing, you jump on it or not.*

- use of emotional appeals,
- focus group to achieve more than they would in their own self-interest,
  - *He did a good job bolstering people during a lot of this.*
  - *I felt that he steered the project toward his own personal interests.*
  - *Some of it is not what I would have done, but it is good.*
  - *The leadership was strong, but my visions were different.*
  - *My journey has been to let go of my own preconceived ideas and opinions. If it were up to me, the curriculum would be very different,*
- encourages emergent properties of team spirit
  - *He's a cheerleader for things. He doesn't get negative at all.*
  - *He allowed everyone to contribute who wanted to.*

- *The leadership was good, and most of the issues were from faculty who did not really want to go along*

- Intellectual stimulation:
  - encourages creativity, innovativeness,
    - *He is not afraid to make a change.*
  - challenges own beliefs & values, beliefs & values of organization,
    - *He's not afraid to swing the pendulum the other way.*
  - supports followers as they try new ways of dealing with organizational issues, think things out on their own, and engage in careful problem solving
    - *I had the opportunity to go to a STEM teaching conference on course design. It sealed it even more for me at an early, critical time in the process for me, and has been useful for us as a whole. Sharing that with him has helped him provide even stronger leadership.*
    - *I wish that the department head would have stepped in and made some decisions when there was a stalemate, but he likes shared governance. But at the end of the day, it is his department, and I wish he would have left a little bit more of his footprint on it. Shared governance is good, but sometimes you need a benevolent dictator to step in.*

- *He always stepped in when he had something in mind that he wanted. When there was something he wanted, he would say so, like with the forages.*
- *I really limited my involvement at the development stage and took over the water course because I didn't like the direction it was going. For the Crop Biology and Physiology, I had to rely on the expertise of others. My area of expertise is water, so that made sense for me to step in with that course.*
- *We talked about going that direction and decided on that policy.*
- *The department head sort of removed himself from the process and was not really involved at all in the early stages. I came from industry, and the head person would come in, lay out the framework for the project, give all of the guidelines and boundaries, then we were off. Later, he would come back and redirect and intervene as necessary. This was left pretty wide open, and we were free to open any cans of worms that we wanted, and go down all the dead ends that we wanted. After the work on the Delphi was complete and we started to develop courses, he started to question the courses. It seemed like an inverted*

leadership model to me. If he had goals in mind, they should have been presented from the beginning.

- *In early meetings, we began to iron out differences in philosophy and approach, and we began to understand the differences in the capacities of students and the importance of getting it right in the process as best we could.*

- Individualized consideration:
  - supportive,
  - listen to individual needs of followers,
    - *I remember one meeting where he looked straight at me and said, I know you have something to say about this.*
  - coach, advise,
    - *He will always help a person to pursue what's next and fill the gap with what they're doing.*
  - assist followers in becoming actualized,
    - *But the real core of this project was the fact that the younger faculty got to push their ideas forward.*
    - *We have an active young faculty, and they are still pretty enthusiastic and excited about the possibilities of things. That was a big driver. They had some really good, well*

articulated ideas that they put out there. If it was not for them, this would not have gotten off the ground.

- use delegation to help through challenges,
    - *Also the committee chair helped drive things*
    - *I think the department head wanted to engage him. He really responded, he really got excited about this whole thing.*
    - *To take that on, kudos to him.*
    - *Yes, I think so, and I didn't get all I wanted, but I feel like I had an influence on the process.*
    - *But following that Delphi, those people who condensed the objectives down to what we have now had a lot of power to shape our department.*
    - *The work of condensing all of that down, and the people that did that could put their own twist on that.*
    - *I also learned that he is quite a delegator.*

Transactional:

- Factors (Bass & Avolio, 2008)
    - Contingent Reward: effort followed by reward
        - *He used threatening language, like "They better do this," then there was nothing to back it up.*
    - Management by exception:

- Active: looking for errors, making corrections
- Passive: unobtrusive measures, making records of the observation

Choice of committee leader

- Well, no one wants to be that person, just like I don't want to be the strategic planning person. For him this is probably one of the biggest roles he's had in the department. Usually, he just tries to do his own thing and stay in the shadows. It's been good to see his involvement.
- I think he was probably assigned this task because he kept bringing it up, and he wanted the assignment, and so it was given to him.
- To be honest, I didn't understand the selection of the committee chair to lead the project. That was a strange choice to me because he was not really ever associated with undergraduates. He was teaching a lab on plant physiology to non-majors because he had a graduate class that had trouble making and he needed a class to make his percentage. He also developed a course for non-majors in environmental agronomy. The students who took his class were marginal, with less than half of the typical capacity of our normal undergraduates. He was never involved with curriculum. I thought at the time he was not a good choice. However, I was pleased with his approach once he had it. I was impressed with how the process moved, and with how he reached out to get help within the process. I was pleasantly surprised with how he handled things.

- I don’t know how he got that assignment, but whoever did it chose well.

Leftovers for this category

- Sometimes he was gruff, and the communication of ideas, like with the autonomy thing and getting someone upset, could have been better.
- I didn’t appreciate his leadership ability.
- The department head is an outstanding leader. He has really good leadership skills.
- Being the leader of this group is like herding cats.
- Well, his leadership has been fantastic.
- They both drug us through.
- And I didn’t know him very well before this started.
- This would actually be a good time for administration to check this off their list, put it in their documentation and apply for another job before this goes into effect.

After this meeting, we decided that the leadership data was adequately analyzed and fit the theory well.

PEER DEBRIEFING MEMO

TO: DR. KIM DOOLEY

FROM: HOLLY JARVIS

SUBJECT: PEER DEBRIEFING MEMO

DATE: 11/1/11

I have selected five interviews that represent each adopter category (Rogers, 2003). The selection criteria follow the generalizations about adopter categories outlined by Rogers and are reflected below as well as descriptions of why I could not get data on all of the generalizations and which ones were irrelevant because they were all equal across the sample. One interviewee was particularly interesting in this regard. I struggled with whether to classify this person as a Laggard or as a Non-Adopter. I finally decided to classify him as a Non-Adopter because of the quick time from information to decision and because he was sought out by numerous people for help with their assigned pieces of the project and he was mentioned in a caring way by many other interviewees, indicating a higher level connectedness he has throughout the social system than Laggards are defined as having.

Adopter Category Generalizations

Generalization 7-1: Adopter distributions follow a bell-shaped curve over time and approach normality.

Socioeconomic Generalizations

Generalization 7-2: Earlier adopters are no different than later adopters in age. Since this is not a factor, it was not considered.

Generalization 7-3: Earlier adopters have more years of formal education than do later adopters. This generalizations does not apply to this sample, all of them have the same level of education, Ph.D.

Generalization 7-4: Earlier adopters are more likely to be literate than later adopters. This generalizations does not apply to this sample, all of them have the same level of education, Ph.D.

Generalization 7-5: Earlier adopters have higher social status than do later adopters. This was not specifically asked in interviews, nor did I have a chance to observe this.

Generalization 7-6: Earlier adopters have greater degree of upward social mobility than do later adopters. This was not specifically asked in interviews, nor did I have a chance to observe this.

Generalization 7-7: Earlier adopters have larger-sized units than do later adopters. The only measure of this to be gained was knowing about the enrollment they had in the classes they taught.

Personality Variables

Generalization 7-8: Earlier adopters have greater empathy than do later adopters. (ability to project self into the role of another, to think imaginatively)

- Innovator: *The service learning component opened my eyes to some things you could have students doing.* 57:26

- Early Adopter: *For the most part, they expect students to be like a sponge, and that if they just pour it out there, students will suck it up like a sponge. This may be true for the top 5-10% of students, but we're not often dealing with the top 5-10% of students. The group we deal with needs more effective learning activities.* 93:7-8
- Early Majority: *I asked Monsanto for help in creating one and got a COALS grant to partially fund it, and I wouldn't have done it had it not been for this process*. 75:64 *It's important for society. When some NGO comes out with some statement about transgenics, students need to be able to have some kind of knowledge about it to be able to say whether their claim has any merit or whether it doesn't. It's this type of knowledge that our students need to be prepared with for society's sake*. 75:85
- Late Majority: *I think it's good that my syllabus looks exactly like the others in the department.* 59:18
- Non-Adopter: *You must have interest in this field first before getting into the details. A broad understanding of agronomy attracted me to this field – history, war, famine – they are all related and it wasn't just a technical interest. In this department, the interest is narrow, specific. To get to those outside the field, you must take a broad approach*. 6-43-45

Generalization 7-9: Earlier adopters may be less dogmatic than are later adopters (closed belief system)

- Innovator: *At the retreat, which was good, I was like Alice in Wonderland, you know, I had never done this before. As the process moved along, and I reflected back on the retreat, it all begins to make sense.* 57:19
- Early Adopter: *I had the opportunity to go to a STEM teaching conference on course design. It sealed it even more for me at an early, critical time in the process for me, and has been useful for us as a whole.* 93:42
- Early Majority: *Agriculture faces challenges in population growth, the economy, and if you believe in climate change, and we have to deal with it quickly, doing what we need to do.* 75:4
- Late Majority: *Uniformity is the basis for this whole thing.* 59:26
- Non-Adopter: *Because those folks are unfamiliar with the average student he teaches, who is not an agronomist, who is not a "believer".* 6:34

Generalization 7-10: Earlier adopters have a greater ability to deal with abstractions than do later adopters. This generalizations does not apply to this sample, all of them have the same level of education, Ph.D.

Generalization 7-11: Earlier adopters have greater rationality than do later adopters (most effective means to an end)

- Innovator: *This process has made me think in greater depth about elective courses that students take, about how you would go about creating that. Hopefully, it has made an impression about how to think about things.* 57:32
- Early Adopter: *I'm doing other things like, "Do a 5 minute reflection on that."*

I'm also doing a lot of things like pair-and-share. I'm having them write about what they just learned. It's good for participation and for taking roll. 93:16

- Early Majority: *This is going to give them exposure to things they need to know to feel confident with production agriculture.* 75:66
- Late Majority: *We think that the best way to present material may not be the best way. This goes both for the ways we are looking for feedback and ways we examine.* 59:10
- Non-Adopter: *I am a complete capitalist. Keep the customers happy.* 6:39

Generalization 7-12: Earlier adopters have more intelligence than do later adopters. This generalizations does not apply to this sample, all of them have the same level of education, Ph.D.

Generalization 7-13: Earlier adopters have a more favorable attitude toward change than later adopters.

- Innovator: *The curriculum review was supposed to get us ahead into the future. We could have gone further*. 57:9
- Early Adopter: *I was always up for this*. 93:44
- Early Majority: *I'm a person who doesn't embrace change right away, and there are a lot of people who are the same way.* 75:19
- Late Majority: *I have accepted that this change is will make things better. When you really get into things and you figure out that we're not just doing this to bide our time, but this is actually going to do something. I had a change of heart*. 59:34-36

- Non-Adopter: *I avoided catastrophe*. 6:36 *When I got my courses listed as service courses, I was happy to not be under this schema.* 6:31

Generalization 7-14: Earlier adopters are better able to cope with uncertainty and risk than do later adopters.

- Innovator: *However, until it's taught, until it gets presented, until there is student feedback, you never know. I still have hopes for it.* 57:17
- Early Adopter: *In the next 4-5 years, I think that we will develop our expectations of what they should remember and know and be able to do 5 years down the road, after they graduate. Big picture stuff – what do they have to know?* 93:58
- Early Majority: *You get all of that and you put it on the backdrop of all the retirements, the rifts and stagnant salaries. You can't ignore losing more than 200 years of teaching experience. Who will replace them? Who is going to teach the classes they've been teaching for so long? Plus we're getting pressure from the research side. You know, if you want to keep your technician, then you have to keep this money coming in. And with getting no raises, why are we taking on this extra work?* 75:33-36
- Late Majority: *We've been through a lot of these things and don't need that brought up again.* 59:41
- Non-Adopter: *My main argument was numbers. 90%+ of my students are not majors and will not be.* 6:37

Generalization 7-15: Earlier adopters have a more favorable attitude toward science than do later adopters. This generalizations does not apply to this sample, all of them have the same level of education, Ph.D.

Generalization 7-16: Earlier adopters are less fatalistic than are later adopters. (letting things happen to them versus making things happen)

- Innovator: *I missed a chunk, not being on the committee from the beginning, and I felt that I was swimming without a buoy or life jacket. It would have been different if I were on the committee from the get go.* 57:36
- Early Adopter: *You need a lesson plan that asks the question – what does this learning activity accomplish? What do you aim to do*? 93:70
- Early Majority: *This is an opportunity for us to change the trajectory of the department.* 75:71
- Late Majority: *It was good to be stepped through the process. We would work on one part, and finish. Then, there would be something else we had to finish by a certain time.* 59:46
- Non-Adopter: *People ask me why I got my Ph.D., and I always say it was so I could control my own destiny.* 6:32

Generalization 7-17: Earlier adopters have higher aspirations than do later adopters. (What are their goals? At what are their goals directed? How hard to they work to get there?)

- Innovator: *I'm burning the midnight oil to get it done. It was not my best, but that's the way it was done.* 57:33
- Early Adopter: *I know I'm doing the right kinds of things, but am I doing it well enough? I feel like I don't have the time to devote to doing it well*. 93:68-69

- Early Majority: *As I see it, we need to stay current with what students need, with what the job market needs, and with the needs of society*. 75:2
- Late Majority: *Getting unity across course material.* 59:9
- Non-Adopter: *There are two faiths lost when curriculum projects happen. The first faith lost is in the individual teacher. That is replaced with trust in the system*. 6:41

Communication Behavior

Generalization 7-18: Earlier adopters have more social participation than do later adopters. I had no mean to observe strictly social behavior.

Generalization 7-19: Earlier adopters are more highly interconnected through interpersonal networks in their social system than are later adopters. I had no means to observe this.

Generalization 7-20: Earlier adopters are more cosmopolite than are later adopters. (connected outside their own social systems)

- Innovator: *When we were under departmental review, I met with the external reviewers, and they liked all of my ideas on application of soil science in forensics, looking at the services soil provides and the changes that occur with urbanization and land management.* 57:8
- Early Adopter: *It was good that we went outside the department to get input, like with the Delphi study*. 93:21

- Early Majority: *Don't get me wrong, there have been some clashes about this curriculum project, and you bet there have been some hurt feelings, but everyone has been diplomatic.* 75:15
- Late Majority: *It is necessary to have people to help in this.* 59-37
- Non-Adopter: Provided extensive explanation (longer than will fit reasonably here – it lasted about 15 minutes) about the political history of the department going back to the 1980's.

Generalization 7-21: Earlier adopters have more contact with change agents than do later adopters.

- Innovator: *Not being on the committee initially, then I kept getting these emails, and going to the meetings. I would get these jobs, and I was doing those.* 57:35
- Early Adopter: Attended almost every committee meeting, now serves on board of CTE.
- Early Majority: *There's also the weekly meetings. If you missed one, you felt like you missed an episode of "Friends" – you know, what happened to Joey this week? And rehashing points from the previous week made things drag out*. 75:28
- Late Majority: *I just was not in tune at the beginning. That's one reason why it was good that there were so many meetings, and the frequency of everyone getting together was important for bringing us along. Yes, it was definitely a learning process. At the onset, there were questions. We got input from other outside groups. We got to ask our questions, we got to give our input, we got to*

digest things, sort things out, and take things to the next step. We were also able to get the overall picture. 59:43-45

- Non-Adopter: Only attended three meetings, including the retreat.

Generalization 7-22: Earlier adopters have greater exposure to mass media communication channels than do later adopters.

- Innovator: *The SSA president was just commenting in the newsletter that there are new concepts all the time, and that it doesn't always have to be about agriculture, it is about so much more.* 57:55
- Early Adopter: No media comments.
- Early Majority: *People don't understand that when they say accountability, they mean bureaucracy. Accountability in schools, like TAKS and STAAR means more bureaucracy. When I see the US News & World Report rankings, I cringe.* 75:59-60
- Late Majority: No media comments.
- Non-Adopter: No media comments.

Generalization 7-23: Earlier adopters have greater exposure to interpersonal communication channels than to later adopters. I had no means to observe this.

Generalization 7-24: Earlier adopters seek information about innovations more actively than do later adopters.

- Innovator: *I was kind of pretty much there already. The service part was something I wanted to bring in, but that won't happen until the spring*. 57:39

- Early Adopter: *I've been in a process of self study on this and have changed my perceptions of what needs to be done regarding learning activities in the classroom.* 93:10 *We have to be on the lookout for stuff.* 93:66\
- Early Majority: *I asked Monsanto for help in creating one and got a COALS grant to partially fund it, and I wouldn't have done it had it not been for this process.* 75:64
- Late Majority: *My co-teacher initiated the hands-on demonstrations in our class…* 59-73
- Non-Adopter: No data.

Generalization 7-25: Earlier adopters have greater knowledge of innovations than do later adopters.

- Innovator: *I've stopped lecturing and gotten out samples of sand, one with that's round and one that's jagged. I ask them what would cause this difference – and it's the windblown gives you jagged edges and the other has been in a river. Then I ask, if you found this at a scene, what would that tell you? I try to get them to observe, to think.* 57:50
- Early Adopter: *What I do is more molding. In one class the learning activities students are doing with some guidance. In other classes, I'm trying to get away from just dumping it out there. Using learning activities is harder to do until you've been through it a few times. You've got to build a library.* 93:11-14
- Early Majority: *Well, at that department meeting last fall, I didn't feel like I was prepared well enough. At the time I didn't appreciate how dramatic this was*

going to be. I expected it to be more of a review all of the syllabi, look for changes and gaps in everything, and then make the changes from there. 75:29-31

- Late Majority: *I still was a little unsure at that point. At the retreat, I felt in the process very uncertain.* 59:40

Generalization 7-26: Earlier adopters have a higher degree of opinion leadership than do later adopters.

- Innovator: In this interview, the Innovator referenced several others who had been on the committee longer, and always in reference to the curriculum review process.
- Early Adopter: *We need to do some connecting the dots, from course design to student assessments. We probably need some presentations on that. There probably needs to be a faculty member driving that, and I wouldn't mind being that person*. 93:45-46
- Early Majority: We used this participant's syllabus as a model for the other syllabi.
- Late Majority: *Some of the older among us who didn't really want to go along were able to step out of the way and say that the younger people would probably be the ones to take this curriculum to its next steps*. 59:67
- Non-Adopter: *I wish that we had been able to have gotten him to buy into the process. He has been one of the most effective teachers in our department.* 75:20

After this meeting, I recognized that I needed to be clear about the innovation bundle which included the curriculum change process, teaching innovations and assessment concepts. Further, since these cases were clear indicators of their adopter categories, an article outlining the experiential differences between these participants was beginning to emerge from the data.